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DISEASES CAUSED BY BACTERIA AND FUNGI

SLANETZ, L. W. & BARTLEY, C. H. (1953). **The diagnosis of staphylococcal mastitis, with special reference to the characteristics of mastitis staphylococci.**—*J. infect. Dis.* 92, 139-151. 1

The authors investigated the staphylococcal mastitis infection in a dairy herd of 100 cows over a five year period. They studied the characteristics of the strains isolated, together with the leucocyte count of affected quarters. They stated that under the conditions of the experiment a quarter yielding a haemolytic, coagulase-positive staphylococcus and showing a leucocyte count of one million or more per ml. generally remained infected thereafter.

Mastitis was produced experimentally by the introduction of cultures or of toxin.

—E. A. GIBSON.

CORSICO, G. & POGGI, A. (1953). Stafilococcosi delle lepri. **[Staphylococcus infection in hares.]**—*Atti Soc. ital. Sci. vet., Sanremo*, 1952. **6**, pp. 212-218. [English and French summaries.] 2

Outbreaks of septicaemia in wild hares, caused by *Staph. albus*, occurred in Lombardy, Italy.—R.M.

ARTIOLI, D. (1953). Gli stafilococchi enterotossici nella ispezione sanitaria degli alimenti di origine animale. **[Enterotoxic staphylococci and the inspection of foods of animal origin.]**—*Atti Soc. ital. Sci. vet., Sanremo*, 1952. **6**, pp. 45-79. Discussion pp. 79-82. 3

A review of the literature on the cultural characteristics of staphylococci which produce enterotoxin, on the biological demonstration of enterotoxin, and on the origin and prevention of staphylococcal food poisoning in man.—R.M.

BLAIR, J. E. & CARR, M. (1953). **The bacteriophage typing of staphylococci.**—*J. infect. Dis.* 93, 1-13. [Authors' summary modified.] 4

The sensitivity to bacteriophage of 539 coagulase-positive strains was determined. Of these, 290 (53·6%) were susceptible to one or more of a series of 25 phages and were assigned to phage types; 4 (0·7%) gave equivocal results and could not be assigned to type, and 245 (44·7%) were not lysed by any phage of the series. Examples were given of the use of phage typing in the identification and differentiation of staphylococci.

LEVY, E., RIPPON, J. E. & WILLIAMS, R. E. O. (1953). **Relation of bacteriophage pattern to some biological properties of staphylococci.**—*J. gen. Microbiol.* 9, 97-100. [Authors' summary copied *verbatim*.] 5

Representative coagulase-positive staphylococci that had been examined for their production of diffusible antigens, α- and β-haemolysins, fibrinolysin and pigment, were typed by bacteriophage. Among strains from human sources there was no significant association between the phage group and the other properties. Strains of staphylococci obtained from animals seemed, however, to form a different biological group from those from human beings.

OEDING, P. (1952). **Serological typing of staphylococci.**—*Acta path. microbiol. scand.* Suppl. No. 93. pp. 356-363. Discussion: pp. 363-365. [In English.] 6

Factor sera demonstrating 10 different antigens of staphylococci were prepared from 9 type strains using formalin-killed bacterial suspensions. Slide agglutination on 540 strains revealed 9 serological types; 85% of 459 coagulase-positive strains fell into 4 types (2 of which contained mastitis strains) and 81 coagulase-negative strains failed to agglutinate. A correlation was found between sensitivity to penicillin and serological type.—A. H. LINTON.

PARKER, R. F. (1953). **A paradoxical effect of penicillin.**—*J. Bact.* **66**, 60-67. [Author's summary modified.] **7**

Actively growing cells of staphylococci are killed by penicillin when exposed continuously to it under conditions favouring continued growth. Cells briefly exposed to a high concentration of penicillin may die after complete removal of the penicillin; this death may be prevented if they are incubated for a time at 25°C. or if the pH of the nutrient medium is reduced from 8·1 to 6·9.

PINKIEWICZ, E. (1952). Spostrzeżenia nad etiologią i leczeniem zołzów u koni. [*Streptococcus equi* **infection—strangles.**]—*Méd. vét., Varsovie.* **8**, 509-511. [In Polish.] **8**

A note on the chemotherapy of strangles. P. stated that in order of merit sulphathiazole, soluble prontosil, sulphapyridine and acriflavine were useful.—J. R. MITCHELL.

HOLMAN, H. H., SMITH, I. M. & PATTISON, I. H. (1953). **Experimental mastitis produced in goats by** *Streptococcus dysgalactiae.*—*J. comp. Path.* **63**, 199-210. [Authors' summary copied *verbatim.*] **9**

Mastitis was induced in goats by the intramammary injection of *Str. dysgalactiae.* The clinical and haematological changes, the alterations in the milk detectable by biochemical tests, and the histological changes in the tissues, were all indistinguishable from those produced by *Str. agalactiae.* As with *Str. agalactiae,* the organisms persisted in the udder throughout the experiment and produced agglutinins that could be detected in the blood serum and in the whey by using a plate test.

QUINN, R. W., SEASTONE, C. V. & WEBER, R. W. (1953). **The relationship of the antigenic characteristics of streptococci and specific antibody responses following streptococcal infections.** — *J. infect. Dis.* **93**, 57-64. [Authors' summary modified.] **10**

The relationship between the ability of a given strain of β-haemolytic streptococcus to produce streptokinase, hyaluronidase and hyaluronic acid and the antibody response to streptolysin O, streptokinase and hyaluronidase in human beings infected by these strains was studied. There was no consistent relationship between Lancefield type and the formation of streptokinase, hyaluronic acid and hyaluronidase. Antibiotic therapy appeared to have only a slight influence in inhibiting antibody response to streptolysin O, streptokinase, and hyaluronidase in the human patients studied.

ROBINSON, H. J., MASON, R. C., JOHNSON, D. H. & SMITH, A. L. (1953). **Effect of adrenocorticotropic hormone on pneumococcal infections in rabbits.**—*Proc. Soc. exp. Biol., N.Y.* **83**, 790-792. [Authors' summary slightly modified.] **11**

A.C.T.H., given at frequent intervals and in large doses, lowered the resistance of rabbits to pneumococcal infection. A.C.T.H. appeared to suppress inflammation at the bacterial injection site sufficiently to permit early and rapid invasion of the blood stream and surrounding tissues.

FIREHAMMER, B. D. & MARSH, H. (1953). **Preparation of antigen for detection of agglutinins for** *Vibrio fetus.*—*Amer. J. vet. Res.* **14**, 392-395. [Authors' summary modified.] **12**

An account of the preparation of antigen for the detection of agglutinins for *V. fetus.* A modification of Huntoon's "hormone" medium was used. Strains were selected in which the short spirillar forms and motility could be maintained, and attention was given to serological type.

PLASTRIDGE, W. N. & EASTERBROOKS, H. L. (1953). **Diagnosis, diagnostic tests, and their reliability.**—*Proc. 89th Ann. Meet. Amer. vet. med. Ass. Atlantic City. June* 23-26*th,* 1952. pp. 331-334. [Authors' summary modified.] **13**

In 190 cases of vibrionic abortion, the bacteriological methods used were 64% effective, and agglutination tests on blood serum of the dam were 81% effective in detecting evidence of infection. Agglutinin titres of 1:100, or higher, were obtained with blood serums from 15 of 16 cows that aborted foetuses from which this organism was isolated. The antigen used gave titres of 1:25, or less, with "normal" bovine serums.

The results of agglutination tests on blood serum and vaginal-cervical mucus from 98 cows with recent clinical evidence of vibriosis showed that both tests should be used in diagnosing infertility due to vibriosis.

LAWSON, J. R. & MACKINNON, D. J. (1953). **Experimental transmission of** *Vibrio fetus.*—*Proc. XVth Int. vet. Congr. Stockholm,* 1953. **2**, Pt. 1. 821-826. [In English. French and German summaries.] **14**

Twenty-two out of 24 heifers became infected when served by an infected bull or artificially inseminated with infected semen. *V. fetus* cultures added to clean semen infected 12

heifers, but cultures given *per os*, or instilled into the conjunctival sac, failed to infect 12 heifers. The filtrate obtained by passing infected semen through a Seitz EK filter, when added to clean semen, did not cause depression of the normal conception rate.

—Ian Newsam.

Ristic, M. & Morse, E. V. (1953). **Experimental *Vibrio fetus* infection in guinea pigs. I. Bacteriological aspects.**—*Amer. J. vet. Res.* **14**, 399-404. [Abst. from authors' summary.] 15

Pregnant g. pigs can be infected experimentally with *V. fetus* by the intraperitoneal, subcutaneous, intravaginal, and oral routes. The organism was isolated in pure culture from the uterus in animals which aborted, and from the aborted foetuses. *V. fetus* was also isolated from the non-gravid uterus and from the gall bladder in some of the experimental animals. Specific serum agglutinins were demonstrable in all animals which had been inoculated *per os*. The gross lesions in infected g. pigs were endometrial haemorrhage, oedema, and necrosis. The foetal organs were oedematous and haemorrhagic.

Price, K. E., Poelma, L. J. & Faber, J. E., Jr. (1953). **Preliminary report on serological relationships between strains of *Vibrio fetus*.**—*Vet. Med.* **48**, 355-358 & 364. [Abst. from authors' summary.] 16

Of 34 strains of *V. fetus* tested against 25 antisera prepared in rabbits, 30 were closely related serologically, but in 20 of these there were variations in agglutinability. The authors suggested that a strain to be used as an antigen should be tested against a large number of bovine or rabbit antisera and should be agglutinated to a fairly high titre by all these antisera. Ten strains were found to meet this requirement.

Some strains isolated from the bovine genital tract were serologically unrelated to foetal strains and were probably saphrophytic. It is possible that they never induce abortion.

Although only a limited amount of work has been done on the serological relationships of somatic antigens, results indicate that some of the strains may have common antigens.

Robinson, E. M. (1953). **A few cases of tuberculosis.**—*J. S. Afr. vet. med. Ass.* **24**, 97-99. [Abst. from author's summary.] 17

An account of a few cases of TB. in domesticated animals and antelopes, the causal organism having been typed in each case.

Cheli, R. (1953). Il " segno di Velez " nella TBC della specie bovina. [**A method of counting leucocytes for the diagnosis of TB. in cattle.**]—*Atti Soc. ital. Sci. vet., Sanremo*, 1952. **6**, pp. 218-222. [English and French summaries.] 18

In TB. in man, Velez (1921) observed that there were more bi-lobed than tri-lobed white cells in the blood. C. applied this test to 31 cattle known to be tuberculous; 20 were positive and 7 were doubtful.—R.M.

Mathiassen, T. (1952). **The campaign against bovine tuberculosis in Denmark and its eradication. A survey.** pp. 20. Aarhus: The Federation of Danish Dairy Associations. [In English. Also published in French in *Bull. Off. internat. Epiz.* (1952), **37**, 499-513.] 19

This booklet deals with the history of TB. in cattle in Denmark and the steps taken to eradicate the disease, culminating in the establishment of 100% of attested herds in the Danish islands in 1949 and on the mainland in 1952. All butter and cheese for export, *i.e.*, bearing the State mark " Lur Brand ", must be made from milk from herds free from TB. as from the 1st June, 1952.—E. G. White.

Wagener, K. & Reuss, U. (1953). Die gegenwärtige Bedeutung der bovinen Infektion für die Entstehung der Kindertuberkulose in Deutschland. [**Incidence of bovine type *M. tuberculosis* infection in children in Germany.**]—*Berl. Münch. tierärztl. Wschr.* **66**, 231-234. [English summary.] 20

During 1950–53, tuberculous material from 1,588 infected children from 13 West German hospitals was examined at the Hanover Veterinary College and bovine type tubercle bacilli were recovered from 29. Of 300 adults with pulmonary TB., 12 were infected with bovine type tubercle bacilli. The majority of the children had extrapulmonary TB. lesions and infection was traced to the consumption of cows' milk. It was stated that nearly 6% of the bottled " pasteurized " milk examined in 4 West German towns was found to be infected with virulent bovine-type tubercle bacilli. H. discussed the importance of preventing bovine type infection in human beings and particularly in children.—E.G.

Kuttler, A. K. (1953). **Report of Federal-State cooperative tuberculosis eradication project.**—*Proc. 56th Ann. Meet. U.S. live Stk sanit. Ass.* pp. 140-143. 21

Although TB. in cattle in the U.S.A. has

been reduced to 0·11% reactors, 1,000 carcasses are condemned yearly as tuberculous. K. suggested that the use of the cervical region for testing on known infected premises might assist in reducing the incidence of reactors. Difficulty is experienced in tracing condemned cattle to premises of origin and a system of identification is advocated. It has not been found possible to carry out an avian and a porcine TB. eradication programme and K. suggested that the best way to deal with this remaining TB. problem would be to undertake an educational campaign to prepare the public and cattle owners for the measures that will require to be used to eliminate the disease.—G. V. LAUGIER.

VON KOLOVRAT, L. M. (1952). Versuche zur absichtlichen Beeinflussung der positiven intrakutanen Tuberkulinreaktion beim Rind. **[Research on fraudulent methods of influencing the positive intradermal tuberculin reaction in cattle.]**—*Inaug. Diss., Hanover.* pp. 52. 22

A discussion on means taken fraudulently to prevent tuberculin reactions in cattle with TB. No new information.—E. A. HIRSCH.

BIENFET, V. (1953). De la réaction épithéloïde à la cellule géante tuberculeuse. A propos d'un cas de tuberculose généralisée avec pareilles cellules chez le chien. **[The significance of giant cells in tuberculous lesions in the dog.]**—*Ann. Méd. Vét.* **97,** 1-22. 23

A detailed account of a case of generalized TB. in a dog. B. discussed the difficulty of diagnosis and gave a detailed account of P.M. findings together with an extensive review of the literature on the causes of giant cell formation.

—J.D.

MONTI, F. (1953). L'idrazide dell-acido isonicotinico nella cura della tubercolosi extrapolmonare del gatto. — Primi risultati. **[Treatment of TB. in cats with iso-nicotinic acid hydrazide.]**—*Atti Soc. ital. Sci. vet., Sanremo,* 1952. **6,** pp. 437-441. [French and German summaries.] 24

Three cats with TB. of the mesenteric lymph nodes and one with a tuberculous skin ulcer were treated by daily injection of 3–5 mg. per kg. iso-nicotinic acid hydrazide. One cat died during treatment. The remainder showed improvement. Toxic effects of the drug became apparent at about the 45th day, and treatment was discontinued.—R.M.

ADAMS, M. O. (1953). **Natural infection of the guinea-pig with the human type of tubercle bacillus.**—*Mon. Bull. Minist. Hlth Lab. Serv.* **12,** 146-148. [Author's summary modified.] 25

The author described three cases of spontaneous TB. in g. pigs, caused by the human type of bacillus, infection being apparently derived from a human case of pulmonary TB. at the breeding establishment. There was no evidence that the infection was able to establish itself in the breeding stock.

WEIMER, H. E., BOAK, R. A., BOGEN, E., DRUSCH, H. E., MILLER, J. N., MOSHIN, J. R. & CARPENTER, C. M. (1953). **Comparative effects of corticotropin and cortisone on experimental tuberculosis.** — *Amer. Rev. Tuberc.* **68,** 31-41. [French and Spanish summaries. Authors' summary modified.] 26

The authors studied the post-treatment effects of corticotropin and of cortisone upon experimental TB. in g. pigs. The administration of 0·1 mg., 1·0 mg., and 10 mg. of corticotropin daily and 0·2 mg., 2·0 mg., and 20 mg. of cortisone daily for 21 days did not have significant effect on the extent of TB. in animals examined P.M. 68 days after the termination of treatment. A significant depression of dermal sensitivity to Old Tuberculin during treatment occurred in animals which received either 10 mg. of corticotropin or 20 mg. of cortisone.

ANON. (1952). **Cultivation of *Mycobacterium tuberculosis*. Part I. Methods of homogenization.**—*Mon. Bull. Minist. Hlth Lab. Serv.* **11,** 187-206. 27

A comprehensive, well-designed experiment showed that homogenization of tuberculous sputa with 4% sodium hydroxide gave a lower rate of contamination and a better rate of successful culture than treatment with 3% sulphuric acid, by Jungmann's method, or with trisodium phosphate, efficiency decreasing in the order given.—A. B. PATERSON.

CHRISTENSEN, P. A., ROBINSON, M. & WIDDICOMBE, M. (1953). **Enumeration of viable tubercle bacilli (BCG) by the roll-tube method.**—*Bull. World Hlth Org.* **9,** 29-37. [French summary.] 28

Round bottles containing liquefied Dubos-agar medium were seeded with measured amounts of B.C.G. suspensions and rolled while cooling. Colony counts made after 3–5 weeks' incubation yielded results conforming with Poisson's law.

SUTER, E. (1952). **The multiplication of tubercle bacilli within normal phagocytes in tissue culture.**—*J. exp. Med.* **96,** 137-150. 29

S. described a useful technique for cultivation of mononuclear cells on glass slides, and presented good evidence that virulent and attenuated strains of tubercle bacilli added to such cultures multiply within the monocytes and ultimately destroy them. Avirulent strains do not multiply and it is suggested that in addition to the individual capacity of a strain to damage the host cell, the ability to multiply is a factor determining virulence.—A. B. PATERSON.

LOWE, J. & MCNULTY, F. (1953). **Tuberculosis and leprosy: Immunological studies in healthy persons.**—*Brit. med. J.* Sept. 12th, 479-584. [Abst. from authors' summary.] 30

The authors analysed the results of simultaneous lepromin and tuberculin tests in 359 healthy persons in East Nigeria. The degree of agreement between the results of the two tests was significant, and was taken to indicate that tuberculous infection rendered the human subject sensitive to the lepromin test. Other workers had reached the same conclusions. Following B.C.G. vaccination, out of 65 persons previously tuberculin-negative, 64 became tuberculin-positive. Of 58 of the same persons previously lepromin-negative, 40 became lepromin-positive and 14 were recorded as " doubtful ". Lepromin conversions were seen only in persons who showed tuberculin conversions.

The authors discussed the question whether a positive lepromin test indicated immunity to leprosy, but drew no conclusions.—R.M.

HOLE, N. H. (1952). **Johne's disease. I. Present-day diagnosis and a preliminary note on an investigation into the value of a serological method.**—*Vet. Rec.* 64, 601-603. 31

H. discussed the diagnosis of Johne's disease in general terms and gave a preliminary account of his experimental work using a haemolytic c.f. test, employing as antigen a washed saline suspension of *M. johnei*. The test is insufficiently specific to be used except in the absence of TB., *i.e.*, in Britain, in attested herds. It has given positive results where repeated faecal examinations have been negative. H. considers, from the tests made on abattoir cattle and cattle in Gt. Britain from herds for which records are available, that it is reasonably accurate in diagnosing preclinical Johne's disease.—L. M. MARKSON.

LARSEN, A. B., PORTER, D. A. & VARDAMAN, T. H. (1953). **A modification of the Middlebrook-Dubos haemagglutination test for use in the diagnosis of Johne's disease.**—*Amer. J. vet. Res.* 14, 362-365. [Abst. from authors' summary.] 32

The authors studied a haemagglutination test for the diagnosis of Johne's disease in cattle. A purified protein derivative of johnin was a satisfactory agent for sensitizing sheep r.b.c. for use in the test. However, serum samples obtained from animals sensitized with bovine type tubercle bacilli also agglutinated sensitized cells, indicating a cross reaction of species within the genus *Mycobacterium*. In tests made on sera from 55 cattle with no history of Johne's disease or of TB., 50 yielded completely negative reactions and 5 had titres ranging from 1:4 to 1:16. A titre of 1:32 or over was therefore selected as denoting a reactor.

Sera from 10 reactors to an intradermal johnin test had titres of 1:32 or over, while the sera of 14 other reactors had titres of 1:16 or less. On the other hand, 15 cattle which had a titre of 1:32 or more did not react to the intradermal johnin test.

Sera from cattle artificially sensitized with *M. johnei* caused sensitized r.b.c. to form larger clumps than did sera from cattle artificially sensitized with bovine type tubercle bacilli.

ALBERTSEN, B. E. (1953). *Corynebacterium pyogenes* **toxin, with particular reference to its measurement.** — *Acta path. microbiol. scand.* 32, 481-491. [In English. Author's summary modified.] 33

The author described a spectrophotometric technique for the determination of the potency of haemolytic toxins, based on the measurement of the light absorption exhibited by the intact r.b.c. By means of this technique it was possible to determine the potency of *C. pyogenes* haemolysin against the same horse blood sample with a standard error of $\pm 4{\cdot}8\%$. It was, however, impossible to obtain a satisfactory standardization of *C. pyogenes* haemolysin against horse blood, partly because of differences between individual lots of toxins produced by the same strain or by different strains, and more particularly on account of the great variations in the resistance of the individual blood samples against haemolysis.

MANTOVANI, G. & LEONE, G. (1953). Osservazioni sull'impiego della bacitracina nella infezione da *Erysipelothrix rhusiopathiae*. II. La bacitracina nella infezione naturale del suino. [**Treatment of** *E. rhusiopathiae* **infection with bacitracin. II. Treatment of natural infection in pigs.**]—*Atti Soc. ital. Sci. vet., Sanremo,* 1952. 6, pp. 479-489. [French and German summaries.] 34

In a previous paper [*V.B.* 23, 1150] MANTOVANI and MAGLIONE reported on the use

of bacitracin in *E. rhusiopathiae* infection in mice. The present authors treated 47 cases of swine erysipelas with 5,000-15,000 units of bacitracin dissolved in 20–45 ml. swine erysipelas serum; 40 pigs recovered after one injection and 2 died. One out of the remaining 5 responded to a second injection of bacitracin with serum. The other 4 were treated with penicillin and recovered.—R.M.

MARSH, H. (1953). **The role of pasteurella in sheep diseases.**—*J. Amer. vet. med. Ass.* **123,** 205-208. [Author's summary modified.] 35

Conditions resembling haemorrhagic septicaemia were rarely seen in sheep in Montana, and, when observed, there was doubt whether pasteurella were the primary aetiological agents. Primary pneumonia caused by *Pasteurella* was uncommon in adult sheep, but caused considerable losses in lambs, and was probably the principal cause of death in " shipping fever ".

BRUNSDON, D. F. V. & MALLETT, B. L. (1953). **Local infection with *Pasteurella septica* following a dog-bite.**—*Brit. med. J.* Sept. 12th, 607. [Abst. from authors' summary.] 36

A report of a case of local infection with *Past. septica* in a human being following a dog-bite. The infecting strain proved to be of a type commonly found in the saliva of healthy dogs.

The authors suggested that routine swabbing of dog-bites might show that infection with *Past. septica* occurs more commonly than is generally realized.

GIOLITTI, G. (1953). Ricerche intorno all'azione del cloruro di trifeniltetrazolio su *Pasteurella multocida* in aerobiosi ed anaerobiosi. [**Action of triphenyltetrazolium chloride on *Pasteurella septica in vitro.***]—*Atti Soc. ital. Sci. vet., Sanremo,* 1952. **6,** pp. 493-498. [English and French summaries.] 37

Triphenyltetrazolium chloride in a concentration of 1:1000 suppressed the growth of 8 strains of *Past. septica* of animal origin, grown on tryptose agar with or without glucose, in aerobic conditions. The growth of the same strains on the same media, but under anaerobic conditions, was facilitated by the addition of triphenyltetrazolium, and the cultures assumed a red coloration due to the formation of triphenylphormazan chloride.—R.M.

ULRICH, J. A. & NEEDHAM, G. M. (1953). **Differentiation of *Alcaligenes faecalis* from *Brucella bronchisepticus* by biochemical and nutritional methods.**—*J. Bact.* **65,** 210-215. 38

Although *Haemophilus bronchisepticus* and *Bact. faecalis alcaligenes* show a close relationship, they can be differentiated by the fact that the former requires niacin for growth, splits urea easily and does not grow on a simple glucose inorganic salt medium whereas the latter differs in the first two characters and can grow on a simple medium.—J. A. NICHOLSON.

YOW, E. M. (1952). **Development of *Proteus* and *Pseudomonas* infections during antibiotic therapy.**—*J. Amer. med. Ass.* **149,** 1184. [Abst. from author's summary.] 39

The suppression of other bacteria by the widespread use of antimicrobial agents has increased the relative importance of *Proteus* and *Pseudomonas* as causative agents in infectious processes. Y. reported infections due to these organisms that developed during or following repeated courses of antibiotic therapy in human beings. The relationship of the infection to the antibiotic therapy was believed in most cases to be a matter of change in bacterial flora due to elimination of sensitive bacteria and multiplication of resistant species. Thus it is important to be aware of the possibility of *Proteus* or *Pseudomonas* infections in patients who originally respond to antibiotic therapy but who present evidence of renewed infection while still receiving therapy. The possible serious effects of giving the broad-spectrum antibiotics prophylactically must be considered, since if an infection does occur with a non-sensitive organism during such therapy it is almost certain to constitute a difficult therapeutic problem.

Y. discussed the problem of treatment of *Proteus* and *Pseudomonas* infections. Streptomycin in combination with large doses of sulphonamides was the most effective therapy in the former, and polymyxin B the most consistently effective in the latter, though some strains were sensitive *in vitro* to terramycin. The correction of any underlying anatomical disorder was considered a most important part of management. The discontinuance of ineffective antibiotics was sufficient to control the infection in some cases by allowing the re-establishment of normal bacterial flora.

WYSS, O. & SCHAIBERGER, G. E. (1953). **Increased pantothenate-synthesizing enzyme in streptomycin-resistant *Escherichia coli.***—*J. Bact.* **66,** 49-51. [Authors' summary modified.] 40

Some streptomycin - resistant strains of

Bact. coli, strain B, contained increased amounts of pantothenic acid and increased activity of a pantothenate-synthesizing enzyme was demonstrable.

V. D. SCHAAF, A. (1953). Behandeling van salmonellose bij het volwassen rund met chlooramphenicol. [**Treatment of salmonella infection in adult cattle with chloramphenicol.**]—*Tijdschr. Diergeneesk.* **78**, 721-734. [English, French and German summaries.] **41**

Of 25 cows with acute gastro-enteritis caused by *S. dublin*, given 4 i/v injections of 5 g. each of chloramphenicol in physiological saline, 20 recovered after the first course was completed, and three after repeated treatment; two died in spite of repeated treatment. Of 18 convalescents examined all but one continued to excrete *S. dublin* in their faeces.—E.G.

WILLIAMS, J. E. (1953). **Antigenic studies using ammonium sulfate. I. The relative sedimentation effect of ammonium sulfate on the various antigenic types of** *Salmonella pullorum*. **II. The macroscopic ammonium sulfate sedimentation test for distinguishing the antigenic forms of** *Salmonella pullorum*.—*Amer. J. vet. Res.* **14**, 458-464 & 465-470. [Absts. from author's summaries.] **42**

I. W. discussed a fundamental difference of a non-serological nature which he found to exist in the various antigenic types of *S. pullorum*. The relative susceptibility of the different antigenic forms of the organism to the flocculating and sedimenting effects of certain concentrations of ammonium sulphate was correlated with the relative balance of XII_2 and XII_3 type cells in the cultures. When suspensions of standard, variant, and intermediate antigenic forms of *S. pullorum* were exposed to varying concentrations of ammonium sulphate, incubated for a short time and then centrifuged, a conc. of approximately 310 g./l. completely cleared the supernatant fluids of standard type suspensions; a conc. approximating 470 g./l. was required to clear suspensions of variant and intermediate type cultures.

II. W. described a method for differentiating standard, variant, and intermediate antigenic types of *S. pullorum*, based on the relative sedimenting effect of ammonium sulphate on the various antigenic forms of the organism, which is, in turn, dependent upon the XII_2 or variant cell content of the cultures. An aqueous solution of ammonium sulphate, containing 330 g. per l., clears standard type suspensions following a short period of incubation and centrifugation, has little effect on the turbidity of variant type suspensions, and only partially clears intermediate type suspensions. Results obtained by this method with *S. pullorum* strains obtained from independent laboratories and with stock standard and variant strains of the organism at present used for antigen production agreed closely with those obtained by serological typing. The test did not reveal the presence of variant type cells in any of 60 cultures of *S. gallinarum* examined.

JONES, A. W., JR. & HOLTMAN, D. F. (1953). **Synthesis of glutamic acid and alanine by** *Salmonella pullorum*.—*J. Bact.* **66**, 147-149. [Authors' summary slightly modified.] **43**

Alanine was demonstrated as a metabolite of 9 strains of *Salmonella pullorum* when grown on a synthetic medium containing threonine and glutamic acid. It was also demonstrated as a metabolite of 5 of the 9 strains grown under reduced oxygen tensions in a synthetic medium containing only threonine. Glutamic acid, although omitted from one of the synthetic media, was nevertheless formed by the 5 strains that grew in that medium under reduced oxygen tension.

The occasional appearance of glutamic acid without alanine, in media initially lacking both amino acids, indicated that glutamic acid must be synthesized first, after which alanine may be formed through the process of transamination.

MAREK, K., MEUSZYŃSKI, S. & LARSKI, Z. (1953). Epizoocja indyków wywołana przez pałeczki z rodzaju Salmonella. [**Epidemic in turkeys caused by** *Salmonella*.]—*Méd. vét. Varsovie*. **9**, 200-204. [In Polish.] **44**

An account of an outbreak of *S. typhimurium* infection in turkeys, traced to infected eggs laid by carriers. Incubators and brooders were responsible for the spread of the infection. *S. enteritidis* was the only other species isolated in this outbreak, from a single individual.

—J. R. MITCHELL.

ADLER, H. E., NILSON, M. A. & STADELMAN, W. J. (1953). **A study of turkeys artificially infected with** *Salmonella typhimurium*.—*Amer. J. vet. Res.* **14**, 246-248. **45**

S. typhi-murium was recovered from the feathers and from the feet of turkeys artificially infected *per os*, 37 and 71 days respectively after inoculation, from their faeces after 44 days, and from the dust and litter in their pens after 71 and 44 days respectively. The organism was

isolated from the kidneys, lungs and spleen of birds killed 19 days after inoculation. Uninoculated controls in another pen became infected, possibly by airborne organisms.—F.E.W.

VAN DORSSEN, C. A. (1953). Rhamnose-negatieve Salmonella typhi-murium uit duiven. [**Isolation of rhamnose-negative** *S. typhi-murium* **from pigeons.**]—*Tijdschr. Diergeneesk.* **78,** 161-163. [English, French and German summaries.] **46**

A record with bacteriological details of two strains of *S. typhi-murium* isolated from dead pigeons in Holland. Both strains failed to ferment rhamnose, a cultural character which has previously been observed in strains recovered from ducks. In this instance, there was a history of contact between the two dead pigeons and ducks.—J. EDWARDS.

KAUFFMANN, F. & FAIN, A. (1953). **Three new salmonella types (S. ituri, S. kasenyi and S. niarembe) from the Belgian Congo. (Occurrence of salmonella types in ducks.)**—*Acta path. microbiol. scand.* **32,** 513-515. [In English.] [Authors' summary modified.] **47**

The authors described three new salmonella types from the Belgian Congo: *S. ituri* = I, IV, XII: z_{10}: 1,5. *S. kasenyi* = XXXVIII: e,h: 1,5. Both these types were isolated from the faeces of apparently normal, adult ducks. *S. niarembe* = XLIV: a: 1,w. was isolated from the faeces of a 6-month-old European child with enteritis.

The authors pointed out that 16 different *Salmonella* have been reported in apparently normal adult ducks and sick ducklings.

HARMS, F. & WEGENER, K. H. (1953). Übertragung der Rinderbrucellose durch Ratten. [**Transmission of** *Br. abortus* **infection in cattle by rats.**]—*Berl. Münch. tierärztl. Wschr.* **66,** 242-245. [English summary.] **48**

Laboratory rats fed cotyledons from the uterus of cows infected with *Br. abortus* excreted the organism with the urine up to 36 hours later; when fed infected bread, they excreted the organism for up to 24 hours and following s/c injection of a suspension of *Br. abortus*, up to 48 hours after infection. No lesions were detectable P.M. The organism remained virulent in voided urine for about 24 hours and was very sensitive to light and to desiccation. The authors discussed the role of rats as possible carriers. —E.G.

GREGORY, T. S. (1953). **A standardized rapid agglutination test for the quantitative estimation of** *Brucella* **antibody in milk.**—*J. comp. Path.* **63,** 171-178. [Abst. from author's summary.] **49**

G. described a rapid milk agglutination test for the detection of *Br. abortus* antibody in milk. The test is standardized against standard dried serum recommended for use, internationally, in serum agglutination tests. It is of value in quantitatively estimating specific antibody in milk. It can be used as an aid to diagnosis of brucellosis not only in herds but also in individual cows.

CURTO, G. M. (1953). Influenza dell'alfatocoferolo sul decorso dell'infezione brucellare sperimentale. [**Effect of alpha-tocopherol on the course of** *Brucella abortus* **infection in g. pigs.**]—*Atti Soc. ital. Sci. vet., Sanremo,* 1952. **6,** pp. 127-129. [English and French summaries.] **50**

G. pigs [number not stated] fed supplements of wheat germ oil appeared to be more resistant to experimental *Br. abortus* infection than control animals, which were kept on a diet without vitamin E.—R.M.

WARING, W. S., ELBERG, S. S., SCHNEIDER, P. & GREEN, W. (1953). **The role of iron in the biology of** *Brucella suis.* **I Growth and virulence.**—*J. Bact.* **66,** 82-91. [Authors' summary modified.] **51**

Methods were devised for freeing culture media from traces of iron by chelation [the formation of complex ions] with 8-hydroxyquinoline (oxine), followed by extraction with chloroform. When there was deficiency of iron, dissociation did not occur to the same extent as when the iron content was normal; accumulation of alanine was markedly reduced; when there was also almost complete freedom from catalase the organism was more invasive, it multiplied more rapidly, mononuclear type of inflammatory response developed more slowly and there was slower degradation of granulocytes that infiltrated into the site of infection.

The organism required at least 0·030 p.p.m. of iron in the medium for max. growth.

VAN DRIMMELEN, G. C. (1953). *Br. melitensis* **isolated from Karakul sheep of South-West Africa.**—*S. Afr. J. Sci.* **49,** 299-302. **52**

The author stated that the literature contained no conclusive evidence of the occurrence of *Br. melitensis* in S. Africa. He described the isolation, from the milk of two Karakul sheep, of an organism resembling *Br. melitensis*, for which he proposed the name "*Br. melitensis* var. *karakul*".—E. A. GIBSON.

PICKETT, M. J., NELSON, E. L. & LIBERMAN, J. D. (1953). **Speciation within the genus Brucella. II. Evaluation of differential dye, biochemical, and serological tests.**—*J. Bact.* **66,** 210-219. [Authors' summary modified.] 53

Two hundred and fifty-eight strains of brucella, isolated from man and animals in Europe, Asia, Africa, and the Americas, were examined by the acriflavine agglutination test. 26 of these gave positive results and therefore were considered unsuitable for inclusion in an examination of the biochemical, dye sensitivity, and antigenic characteristics of smooth brucella.

All of the 232 smooth strains were tested for urease activity and for sensitivity to thionine, basic fuchsin, crystal violet, and pyronin. Both representative and atypical strains were examined also in respect of sulphide production, sensitivity to diethyldithiocarbamate, and sensitivity to azure A and safranin O.

Two hundred and fourteen of the 232 smooth strains fell into three well defined groups, corresponding to the three generally recognized species of *Brucella,* on the basis of the thionine, fuchsin, crystal violet, pyronin, urea, and carbamate tests. Five strains were acutely sensitive to both carbamate and the dyes and therefore required serological examination for their identification. Three strains gave sensitivity and biochemical tests indicative of *Brucella melitensis* but reacted serologically like *Brucella abortus.*

The carbamate and the urea tests proved practical and reliable for identifying strains of brucella. With rare exceptions, only strains of *B. melitensis* gave positive carbamate tests, and only strains of *Brucella suis* were strongly urea positive. Tests for production of hydrogen sulphide were not found suitable for the identification of species.

Azure A and safranin O were found to be useful adjuncts to the traditional four dyes for the identification of atypical strains.

ŠIPKA, M. & VIĆENTIJEVIĆ, Č. (1951). **[Examination of a dry *Brucella* antigen.]**—*Vet. Glasn.* **5,** 618-627. [In Serbian. German summary.] 54

A dry brucella antigen was tested with blood and milk sera and the authors considered that it was preferable to standard brucella suspensions.—I. MARTINI.

PRÉVOT, A.-R., SILLIOC, R. & QUENTIN, M. (1953). Existence en France du bôtulisme bovin de type C. **[Botulism (Type C) in cattle in France.]**—*Bull. Acad. vét. Fr.* **26,** 73-78. 55

Seven out of a herd of 12 Normandy cattle died shewing excitability, locomotor disturbances, dysphagia and excessive salivation, without pyrexia. *Clostridium botulinum* type D antitoxin had no curative effect. Liver filtrates produced typical botulism in mice, and type C antitoxin gave protection. A weakly toxigenic *Cl. botulinum* type C was isolated from the liver. Hitherto, only type D botulism has been noted in horses and cattle in France.

—J. E. SMITH.

WAGENAAR, R. O., DACK, G. M. & MAYER, D. P. (1953). **Studies on mink food experimentally inoculated with toxin-free spores of *Clostridium botulinum* Types A, B, C, and E.**—*Amer. J. vet. Res.* **14,** 479-483. [Abst. from authors' summary.] 56

Groups of mink fed toxic cultures of types A, B, C, and E *Cl. botulinum* were resistant to types A, B, and E but susceptible to type C. In samples of a mink food (containing fish, horse flesh, beef liver and duck offal) prepared at a particular ranch, which were inoculated with toxin-free spores of types A, B, C, and E *Cl. botulinum,* incubated at 30°C. for 24 hours and subsequently tested in mice, toxin did not develop. Control beef heart medium similarly inoculated became toxic in 24 hours with types A and C, but not with types B and E. *Macaca mulatta* were found susceptible to feeding of toxic cultures of types C and E *Cl. botulinum.* Intraperitoneal injection of mice with the supernatant fluid from samples of the mink food, and with that from ground lean beef inoculated with type C *Cl. botulinum* spores plus larvae or eggs of *Lucilia illustris,* revealed that lean beef was a much more favourable medium for type C toxin production than the mink food used. The presence of larvae of *L. illustris* favoured the growth and toxin production of type C *Cl. botulinum* spores inoculated into lean beef and into the mink food.

BELL, W. B., RICE, A. W. & CONNOR, B. V. (1953). **An outbreak of bovine leptospirosis in Virginia.**—*Vet. Med.* **48,** 87-88. [Authors' summary modified.] 57

A description of an outbreak of leptospirosis in a dairy herd, in which the chief symptom was abortion in the 7th or 8th month of pregnancy. *L pomona* was isolated from individuals in the herd.

CORDY, D. R. & JASPER, D. E. (1952). **The pathology of an acute hemolytic anaemia of**

cattle in California associated with *Leptospira*.—*J. Amer. vet. med. Ass.* **120,** 175-178. **58**

In 9 outbreaks of haemoglobinuria and sudden death leptospiral forms were seen in kidney sections, but the organism was not isolated.—K. G. TOWERS.

ORMSBEE, R. A. (1953). **Effect of erythromycin, and three other antibiotics on *Leptospira icterohemorrhagiae* in the chick embryo.**—*Proc. Soc. exp. Biol., N.Y.* **83,** 815-816. [Author's summary modified.] **59**

Five broad spectrum antibiotics were tested for their relative effectiveness in suppressing *L. icterohaemorrhagiae* infections in chick embryos. The drugs may be ranked in the following order of potency: erythromycin> penicillin G>streptomycin>aureomycin>thiocymetin>chloramphenicol. These results indicated that erythromycin may prove valuable in the treatment of leptospirosis.

HOAG, W. G., GOCHENOUR, W. S., JR. & YAGER, R. H. (1953). **Use of baby chicks for isolation of leptospires.**—*Proc. Soc. exp. Biol., N.Y.* **83,** 712-713. [Authors' summary modified.] **60**

Leptospira pomona was present in the blood of 13 two-day-old chicks for at least 5 days following i/p inoculation of cultures of the organism. No clinically detected illness resulted from this infection, nor was there constant significant serologically demonstrable antibody response. The authors suggested the use of chicks for recovery of *Leptospira* from materials contaminated with other micro-organisms and hence unsuitable for direct culture.

HOAG, W. C., GOCHENOUR, W. S., JR. & YAGER, R. H. (1953). **Leptospiral macroscopic agglutinating antigens.**—*Proc. Soc. exp. Biol., N.Y.* **83,** 490-494. [Authors' summary modified.] **61**

The authors described a method for the preparation of macroscopic leptospiral agglutinating antigens. The antigens, prepared from 9 leptospiral serotypes, were sensitive, specific, and stable over protracted periods of storage, and produced easily discernible reactions in the presence of antibodies.

SELIGMANN, E. (1953). **Virulence enhancement of *Candida albicans* by antibiotics and cortisone.**—*Proc. Soc. exp. Biol., N.Y.* **83,** 778-781. **62**

In a previous paper [*V.B.* **23,** 63] S. had observed that the simultaneous i/p inoculation of mice with *C. albicans* suspensions and aureomycin resulted in the death of the mouse, although inoculation of either substance separately was not fatal. In the present paper he found that the simultaneous i/p inoculation of *C. albicans* suspensions and either terramycin or cortisone was also fatal for mice. Penicillin, streptomycin and chloramphenicol did not have this effect. He suggested that the cause of this phenomenon was lowered resistance of the animal.—R.M.

MANTOVANI, G. & AIROLDI, G. (1953). La terapia streptomicinica della polmonite aspergillare nei polli. **[Streptomycin treatment of *Aspergillus* infection in fowls.]**—*Atti Soc. ital. Sci. vet., Sanremo,* 1952. **6,** pp. 476-479. [French and German summaries.] **63**

An outbreak of *Aspergillus fumigatus* infection occurred in a flock of 127 fowls. When birds with symptoms were treated with 50 mg. dihydrostreptomycin in a procaine - pectin vehicle injected i/m once daily, there was a marked reduction in the number of deaths.
—R.M.

SMRČEK, Z. (1952). Prilog liječenju aktinobaciloze jezika goveda. (Intravenozna aplikacija jodnih soli.) **[Actinobacillosis of the tongue in cattle and its treatment with intravenously applied iodine salts.]**—*Vet. Glasn.* **6,** 612-617. [In Croat. French summary.] **64**

A clinical account of the successful treatment with i/v injections of iodine solutions, of 9 cases of actinobacillosis in cattle.—F.A.A.

DRIEUX, H., THIÉRY, G. & BEAUFRÈRE, P. (1953). Hépato-splénite mortelle du porc vraisemblablement provoquée par un champignon. **[Hepatomegaly and splenomegaly in swine, apparently caused by a fungus.]**—*Rec. Méd. vét.* **129,** 424-430. **65**

P.M. examination of a pig killed during the course of a severe disorder apparently of digestive origin revealed conspicuous splenomegaly and hepatomegaly. Cultures on " the usual media " were negative, but histologically strongly basophilic bodies 2–4μ in diameter were visible in the spleen and liver. Histochemical studies of these bodies and the finding of mycelium in one section inclined the authors to the view that the condition was a mycosis.
—J. T. DONE.

Newing, C. R. & Field, A. C. (1953). **A preliminary report on a rapid field test for contagious bovine pleuropneumonia.**—*Brit. Vet. J.* **109**, 397-404. [Authors' summary modified.] **66**

The authors described the preparation of an antigen for a whole-blood, rapid slide test for bovine contagious pleuro-pneumonia and a technique for making the test. The authors considered this test to be at least as satisfactory as the complement fixation test for diagnosis, even in chronic cases. Agglutinins persisted in the blood of vaccinated animals for some time after complement fixing antibodies had disappeared.

Terpstra, J. L. (1953). **A case of " enzootic sterility " (*Vibrio fetus*; pleuropneumonia like organisms).**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **2**, Pt. 1. pp. 811-816. [In English. French and German summaries.] **67**

T. discussed problems encountered when attempting to determine the cause of poor fertility in a bull. Infection by *V. fetus* and a pleuropneumonia-like organism was suspected; the latter was isolated but the former could not be recovered; an alkyl-aryl-sulphonate and aesculin medium was used. *V. fetus* infection was proved by mating the bull to heifers and testing their vaginal mucus for antibodies.

—Ian Newsam.

Libenson, L., Hadley, F. P., McIlroy, A. P., Wetzel, V. M. & Mellon, R. R. (1953). **Antibacterial effect of elemental sulfur.**—*J. infect. Dis.* **93**, 28-35. [Authors' summary modified.] **68**

Elemental sulphur in a high degree of dispersion exerted a strong inhibitory action *in vitro* against several strains of haemolytic strepococcus, *Clostridium welchii*, Type 1 pneumococcus, *Brucella abortus* and to a lesser degree against *Staphylococcus aureus*. No inhibitory action was observed against the following Gram-negative organisms: *Bacterium coli, Proteus vulgaris, Salmonella typhi, Pseudomonas pyocyanea* or *Streptococcus pneumoniae*.

Glutathione, *l*-cysteine and sodium thioglycollate neutralized the antibacterial activity of the sulphur.

The antibacterial action of small particles of sulphur compared with the low activity of larger particles was explained by the higher vapour pressure exerted by the small particles in the culture medium.

The mode of action of sulphur may be the inactivation of the SH enzyme systems of the bacterial cell.

Sborov, V. M., Morse, W. C., Giges, B. & Jahnke, E. J., Jr. (1952). **Bacteriology of the human liver.**—*J. clin. Invest.* **31**, 986-992. [Abst. from authors' summary.] **69**

Of 85 biopsy samples taken from the left lobe of the liver of human patients only 2 yielded bacterial cultures. Of similar biopsy samples taken from dogs, 35% yielded positive cultures. It was suggested that the presence of bacteria in the liver might be an explanation for death from " liver autolysis " and for death following ligation of the hepatic artery in dogs.

Doetsch, R. N., Robinson, R. Q., Brown, R. E. & Shaw, J. C. (1953). **Catabolic reactions of mixed suspensions of bovine rumen bacteria.** — *J. Dairy Sci.* **36**, 825-831. [Authors' summary modified.] **70**

A number of substrates of known importance in metabolic processes were tested under anaerobic conditions with mixed suspensions of bovine rumen bacteria. The gases and volatile fatty acids produced from these substrates were characterized. On the basis of the results obtained recommendations were made for the practical application of the technique to the solution of problems involving bovine rumen bacteria.

See also absts. **172** (*Bact. coli* as a food supplement); **262** (*V. fetus*); **262** (*Br. abortus*); **298** (report. Gt. Britain); **299** (report. Isle of Man); **300** (report. Australia); **302** (book, nucleo-cytoplasmic relations in microorganisms).

DISEASES CAUSED BY PROTOZOAN PARASITES

Ford, E. J. H., Wilmshurst, E. C. & Karib, A. A. (1953). **Studies on ethidium bromide. I.—The treatment of early *T. vivax* infection in cattle.**—*Vet. Rec.* **65**, 589-590. [Authors' summary modified.] **71**

Treatment of 30 cattle experimentally infected with *T. vivax* with ethidium bromide at levels ranging from 0·25 to 1·5 mg. per kg. cleared the blood of trypanosomes within 48 hours and maintained this freedom during daily observations for a period of 16 weeks. There were two deaths from trypanosomiasis out of seven untreated controls and none in the 30 treated animals.

Packchanian, A. (1953). **Chemotherapy of experimental Chagas' disease with thirty antibiotics.**—*Amer. J. trop. Med. Hyg.* **2**, 243-253. 72

Of 30 antibiotics tested *in vitro* and *in vivo* against *Trypanosoma cruzi* some were capable of immobilizing trypanosomes *in vitro*, but none were active *in vivo*.—John Seamer.

Nardi, E., De Pinto, F. & Papa, A. (1953). La leishmaniosi del cane a Foggia. **[Leishmania infection in dogs in Italy.]**—*Atti Soc. ital. Sci. vet., Sanremo*, 1952. **6**, pp. 388-393. [English and French summaries.] 73

The authors diagnosed *Leishmania* infection in three out of 102 dogs examined in the province of Foggia.—R.M.

Barei, S., Binaghi, C. & Poggi, A. (1953). Osservazioni sul trattamento della trichomoniasi nel toro secondo il metodo Hess. **[Treatment of *Trichomonas* infection in bulls.]**—*Atti Soc. ital. Sci. vet., Sanremo*, 1952, **6**, pp. 250-254. [English and French summaries.] 74

Using the method of Hess [*V.B.* **21**, 62] which consists of irrigation of the prepuce with hydrogen peroxide solution, the authors treated 200 bulls infected with *Tr. foetus*. They claimed that 70% were cured by one treatment.—R.M.

Delappe, I. P. (1953). **Studies on *Histomonas meleagridis*. III. The influence of anaerobic versus aerobic environments on the growth of the organism *in vitro*.**—*Exp. Parasit.* **2**, 209-222. [Author's summary modified.] 75

Histomonas, accompanied by bacterial flora, was grown in both aerated and non-aerated media and it grew better in non-aerated media.

A 0·2% soln. of cysteine hydrochloride used singly or in conjunction with a vaseline-paraffin overlay, prevented growth. A 0·1% concentration, used alone, brought about an initial lag in growth of the flagellate, followed by a sharp increase in the rate of multiplication. Incorporation of 0·002 μg./ml. of biotin in the medium resulted in better growth of the organism.

Pino, J. A. & Hudson, C. B. (1953). **Duration of sexual retardation in S.C. White Leghorn pullets and cockerels following enheptin (2-amino, 5-nitrothiazole) feeding.**—*Poult. Sci.* **32**, 650-655. [Authors' summary modified.] 76

When fed to White Leghorn pullets and cockerels just before sexual maturity, the drug 2-amino, 5-nitrothiazole inhibited and repressed sexual activity. A daily drug intake of 41·0 mg./kg. body wt. caused complete suppression of sexual development. Continuous drug treatment at a dietary level of 0·05% prevented sexual maturation. Upon discontinuance of treatment, it was found that approx. 10 weeks were required for recovery from the effects of the drug in both males and females. The interrelationship of the effects on the reproductive system as mediated through the endocrine organs was discussed.

Kotlán, A., Pellérdy, L. & Versényi, L. (1951). Experimentelle Studien über die Kokzidiose der Schafe. I. Die endogene Entwicklung von Eimeria parva. **[A study of coccidiosis in sheep and of the tissue stages of development of *Eimeria parva*.]**—*Acta vet. hung.* **1**, 317-331. [In German. Russian summary.] 77

The authors described the histopathology of intestinal lesions in two lambs experimentally infected with *E. parva*, and discussed the significance of the large schizonts—resembling *Globidium*—produced in the small intestine. They stated that the merozoites also were distinguishable from those of other species. Gamete stages were confined to the large intestine.

—M. L. Clarke.

Uricchio, W. A. (1953). **The feeding of artificially altered oocysts of *Eimeria tenella* as a means of establishing immunity to cecal coccidiosis in chickens.**—*Proc. Helm. Soc. Wash.* **20**, 77-83. [Author's summary modified. 78

An account of 52 sets of experiments to determine the efficacy of single doses of artificially altered oocysts of *Eimeria tenella* in establishing immunity against caecal coccidiosis in chickens. No appreciable resistance was developed in birds fed oocysts altered by means of ultrasonics, radium, or heat at 60°C. Fifteen-day-old chicks fed 100,000 oocysts treated by heat at 45°C. for 12 hours appeared to have a marked immunity to a challenging lethal dose. A more effective degree of immunity was produced in birds of the same age fed 100,000 oocysts exposed to −5°C. for 5 days.

Edgar, G. (1953). **The occurrence of *Anaplasma marginale* in cattle in New South Wales.**—*Aust. vet. J.* **29**, 199. [Abst. from author's summary.] 79

An account of a fatal case of *A. marginale* infection in a Jersey cow. Infection with this organism had not previously been detected in New South Wales. The vector was probably the cattle tick *Boophilus microplus*.

MILLER, J. G., LEVY, H. E., TORBERT, B. J. & OGLESBY, W. T. (1953). **A method of screening drugs to be used in the treatment of anaplasmosis—results of testing with aureomycin and terramycin.**—*Proc. 89th Ann. Meet. Amer. vet. med. Ass. Atlantic City. June* 23-26th, 1952. pp. 160-167. [Authors' summary modified.] **80**

Splenectomized calves were used for testing drugs to be used in the treatment of anaplasmosis.

Aureomycin and terramycin exhibited definite *Anaplasma*-inhibitory properties but did not prevent anaemia, particularly when treatment was delayed until a fairly high percentage of red blood cells were parasitized. An attempt was made to eradicate *Anaplasma* in adult carriers by the prolonged administration of therapeutic doses of aureomycin and terramycin. Blood from these animals was still infective after ten days' treatment. However, after sixteen days' treatment with terramycin, subinoculations into splenectomized calves did not produce anaplasmosis within sixty days of inoculation.

MOULTON, J. E. & LINTON, G. A. (1953). **A case of toxoplasmosis in a dog.**—*Cornell Vet.* **43,** 445-451. [Authors' summary modified.] **81**

A rapidly fatal disease in a dog was characterized by intestinal ulcers, massive lymph node necrosis, and foci of hepatic and lung necrosis. Parasites found in sections of abdominal organs had the structure and distribution of *Toxoplasma gondii*.

SCHMIDT-HOENSDORF, F. & HOLZ, J. (1952). Untersuchungen auf Toxoplasmose bei Haustieren im Raum von Gross-Berlin mit dem Sabin-Feldman-Test. **[The use of the Sabin-Feldman test for toxoplasmosis in domestic animals in the Berlin district.]** —*Berl. Münch. tierärztl. Wschr.* **65,** 194-195. **82**

Of serum samples from 160 pigs, 108 cattle, 100 sheep and 50 dogs tested for toxoplasms by the Sabin-Feldman test, those of 2 cattle, one sheep and one dog gave positive reactions.

—M. L. CLARKE.

EYLES, D. E. & COLEMAN, N. (1953). **The relative activity of the common sulfonamides against experimental toxoplasmosis in the mouse.**—*Amer. J. trop. Med. Hyg.* **2,** 54-63. **83**

Of 6 sulphonamides tested for efficiency against *Toxoplasma gondii* infection in mice, the pyrimidine derivatives, sulphadiazine, sulphamerazine and sulphamethazine were the most effective at relatively low blood levels. Increasing the dosage did not prolong survival.

—M. L. CLARKE.

RAWLEY, J. (1953). **Observations on the maturation of gametocytes of *Leucocytozoon simondi*.**—*Proc. Helm. Soc. Wash.* **20,** 127-128. [Author's summary copied *verbatim*.] **84**

Apparently both the large round and large fusiform gametocytes of *L. simondi* seen in the dried giemsa-stained blood smears are mature. Some evidence of the maturation process of both the round and elongate macrogametocytes was seen as well as maturation and exflagellation of both the round and elongate microgametocytes.

SCHULZ, K. C. A. & RYKSEN, W. J. (1953). **Incidental occurrence of infusoria in the lungs of a suspected case of enterotoxaemia.** —*J. S. Afr. vet. med. Ass.* **24,** 101-106. **85**

At the P.M. examination of a ram which apparently died from enterotoxaemia, various protozoa were seen in sections of the lungs in the alveoli and bronchioles. It was thought that the protozoa originated from the rumen, although there was no evidence of aspiration of rumen contents.—R.M.

SUGDEN, B. (1953). **The cultivation and metabolism of oligotrich protozoa from the sheep's rumen.**—*J. gen. Microbiol.* **9,** 44-53. **86**

S. described the methods for preparing suspensions of *Metadinium medium* and species of *Entodinium* from the rumen contents of sheep. *M. medium* was cultivated on powdered cotton wool (0·05%) and powdered hay (0·05%) in buffer at pH 6·8 containing sodium sulphite (0·01%). In the case of *Entodinium* sp. the substrates were rice starch (0·05%) and powdered hay (0·05%). Both species remained alive for 12–14 days.

When streptomycin (560 μg./ml.) was added to the cultures, *Entodinium* spp. disappeared within 24 hours and *M. medium* in 3 or 4 days. Death of the *Entodinium* spp. was not

due to a direct toxic effect of streptomycin on the protozoa, because in two experiments when resistant strains of bacteria developed, *E. longinucleatum* lived on for the usual 12 days.

It was concluded that these protozoa are dependent on bacteria for some of their metabolic processes, including the utilization of starch or cellulose.—L. P. JOYNER.

See also abstr. 298 (report, Gt. Britain); 302 (book, nucleo-cytoplasmic relations in microorganisms).

DISEASES CAUSED BY VIRUSES AND RICKETTSIA

RÖHRER, H. (1953). L'évolution de l'épizootie dans la République démocratique allemande après l'emploi préventif de vaccin O A. [**Foot and mouth disease in East Germany after the use of a bivalent OA vaccine.**]—*Bull. Off. int. Epiz.* 39, 140-147. 87

In East Germany, during the extensive epidemic in West Germany, only 10% of all counties were affected and only 1% of all cattle were involved. R. ascribed this comparative immunity to total vaccination of all cattle over 5 months old with a bivalent OA vaccine. Heaviest infection occurred in border counties where the goat population is very high, and spread from goats to cattle occurred. Sheep and pigs appeared to play a minor role in spread. Disease was of a benign nature and R. maintained that passage through a belt of immunized animals results in lowered virulence. He also maintained that an A vaccine is capable of protecting against all A variants including A5.

—G. V. LAUGIER.

REID, J. (1953). **Foot-and-mouth disease.**—*Agriculture, Lond.* 60, 75-79. 88

A brief description of the disease, its course and possible losses is given together with the probable duration of convalescence. The European outbreaks of 1951–52 and the resulting British outbreaks were briefly described. The economics of epidemics were indicated and emphasis was laid on the risks from imported meat.—G. V. LAUGIER.

SALOMON, LOUIS & SALOMON, LÉONE. (1953). L'isolement de l'ultra-virus responsable de la stomatite pseudo-aphteuse épizootique des bovidés. [**Isolation of an ultravirus from a disease resembling foot and mouth disease and vesicular stomatitis in cattle.**]—*C. R. Acad. Sci. Paris.* 237, 112-114. 89

An account of an outbreak of bovine stomatitis in which 140 out of 180 cattle were affected over a period of 2 years. Details of the lesions and of the course of the disease were given. It was shown to be of virus origin, filtrable through 400–200 mμ membranes. Disease was transmitted experimentally to healthy cattle, rabbits, g. pigs, and immature rats and mice. Culture on egg embryo was successful and antigen prepared from this source gave complement fixation in serum from animals that had recovered. The virus was shown to be distinguishable from the F. & M. disease and vesicular stomatitis viruses and appeared to be similar to pseudo aphthous stomatitis as described by some authors. Further work is proceeding.—G. V. LAUGIER.

EIDSON, M. E., KISSLING, R. E. & TIERKEL, E. S. (1953). **Pseudorabies virus infections in dogs.**—*J. Amer. vet. med. Ass.* 123, 34-37. [Abst. from authors' summary.] 90

The virus of Aujeszky's disease was recovered from the brain tissue of 4 naturally infected dogs from the south-eastern States of the U.S.A. The four strains produced clinical symptoms of pruritus when inoculated intracerebrally into mice and were similar to the virus isolated by Shope from swine in the mid-western States.

KOMAROV, A. & HORNSTEIN, K. (1953). **Studies on the pathogenicity of an avianized street rabies virus.**—*Cornell Vet.* 43, 344-361. [Authors' summary copied *verbatim.*] 91

Four street and two fixed strains of rabies virus were adapted and passed serially in the developing chick embryo. Following serial egg passages, a marked modification in virulence was noted for strain Kelev isolated from a rabid dog. At its highest egg-level passage the virus lost almost completely its ability to infect mice, rabbits, and hamsters by either the intramuscular or intracerebral route. Preliminary observations seem to indicate that this virus lost its ability to infect domestic animals by the intramuscular route, and at its highest egg-level passage it failed to infect dogs inoculated intracerebrally. The modified virus retained at its highest egg-level passage its immunogenic properties and protected against infection with the homologous street virus, the Challenge Standard Virus, and the Pitman-Moore fixed virus.

VON MAGNUS, P. (1953). **The influenza virus: its morphology, immunology, and kinetics of multiplication.**—*Bull. World Hlth Org.* **8,** 647-660. [French summary. Abst. from author's summary.] 92

M. described the morphology of the influenza virus and the properties of its two components, the elementary body and the soluble substance. He discussed the antigenic constitution of A and B viruses and described variations in the pattern of individual strains over the past two decades. He described other differences in serological behaviour, such as non-specific inhibition and the avidity effect. He reviewed the results of experimental investigation, with various animal hosts, of the kinetics of influenza virus multiplication, and considered the effects of such factors as incubation temperature and concentration of the seed virus. He laid emphasis on the bearing of these studies on the chemotherapeutic control of influenza.

BURNET, F. M. (1953). **Recent work on the intrinsic qualities of influenza virus. Somatic and genetic aspects.**—*Bull. World Hlth Org.* **8,** 661-682. [French summary.] 93

B. reviewed recent work on somatic and genetic aspects of the influenza virus, particularly that carried out at the Walter and Eliza Hall Institute of Medical Research at Melbourne, Australia. It included haemagglutination, mutation, and multiplication of the virus.

—R.M.

GOMPELS, A. E. H. (1953). **Antigenic relationships of swine influenza virus.**—*J. gen. Microbiol.* **9,** 140-148. [Author's summary copied *verbatim*.] 94

Antigenic comparisons of six strains of swine influenza virus with three strains of human influenza A virus were made by the agglutination-inhibition technique. The strains were also compared in regard to inhibition by normal sera, rate of elution from red cells, pathogenicity for mice, and other properties. All swine strains were significantly different from human strains. Four American swine strains formed a fairly homogeneous group, but were less closely related to two strains recovered in the United Kingdom. The findings are briefly discussed in terms of the relationship between human and swine influenza.

HUBÍK, R. (1952). Isolace a studie domácích virů chřipky vepřů. [**Isolation and study of swine influenza viruses.**]—*Spisy Vysoké Školy Vet. Brno.* **21,** No. 199. pp. 1-17. [Russian summary.] 95

Lung material from 85 pigs with clinical symptoms of swine influenza was examined and four different strains of the virus were isolated. A mild form of swine influenza was produced experimentally in piglets by intranasal instillation of purified virus material. Antibodies were demonstrable in their serum on the seventh day after infection and persisted for about three months. The effect of the secondary microflora on the course of the disease was discussed.

—E.G.

FULTON, F. & ISAACS, A. (1953). **Influenza virus multiplication in the chick chorio-allantoic membrane.**—*J. gen. Microbiol.* **9,** 119-131. [Authors' summary modified.] 96

The authors studied influenza virus infection of the allantoic and chorionic surfaces of the chick chorio-allantoic membrane. It was possible to infect one surface of the membrane at a time and to show that the two layers behaved independently and reacted differently. In contrast to the allantoic layer, the chorionic cells appeared to support only a single cycle of multiplication. This conclusion was based particularly on the small rise of infectivity which occurred following chorionic inoculation of virus, and on the proportion between the amount of virus inoculated and the yield of soluble antigen. Some evidence suggested that the elementary bodies are less readily released from chorionic cells than from the allantoic cells.

ISAACS, A. & FULTON, F. (1953). **Interference in the chick chorion.**—*J. gen. Microbiol.* **9,** 132-139. [Authors' summary modified.] 97

Experiments were carried out in an attempt to demonstrate some of the interference phenomena with influenza viruses which are readily demonstrable in the allantoic cells. No interference phenomena occurred when mixed strains of virus, or virus partly or completely inactivated by heat or by ultra-violet irradiation, were inoculated on the chorion.

ANDERSON, S. G. (1953). **Murray Valley encephalitis: a survey of avian sera, 1951-1952.**—*Med. J. Aust.* April 25th, 573-576. [Author's summary modified.] 98

Wild and domestic birds in the Murray Valley, Australia, were examined for neutralising antibody to Murray Valley encephalitis virus. The antibody was found in many species of wild bird, and particularly in water birds. The majority of domestic fowls, *Gallus gallus*, living near the Murray River carried such antibody, but a lower proportion of domestic fowls

living more than a mile from natural water was positive.

Maternal antibody is transmitted to the immature little pied cormorant, *Phalacrocorax melanoleucos*.

It is believed that many species of wild bird, and domestic fowls, are transient natural hosts of the virus.

Rosenbaum, H. E. & Harford, C. G. (1953). **Effect of fatigue on susceptibility of mice to poliomyelitis.**—*Proc. Soc. exp. Biol., N.Y.* **83,** 678-681. [Authors' summary modified.] **99**

Mice were forced to run in a revolving drum during the day preceding and for 8 hours each day subsequent to the intracerebral injection of the Lansing strain of virus. Control animals inoculated at the same time with the same amount of virus were allowed to rest in their cages. The incidence of the disease as measured both by paralysis and by death was greater in the 223 exercised animals than in the 328 resting controls.

Lépine, P., Barski, G., de Brion, G. & Monaci, V. (1953). Culture *in vitro* du virus poliomyélitique sur tissu humain adulte. [*In vitro* **culture of poliomyelitis virus on human adult tissue.**]—*C. R. Acad. Sci. Paris.* **236,** 154-155. **100**

The authors used connective tissue and tonsils, removed from children and adults, as substrates for the culture of poliomyelitis virus. For 10–15 days these tissues were cultured in a medium composed of human, bovine and equine sera, chick embryo extract, and saline solution. They were then transferred to fresh media and the virulent material was added. After a further three days the media were changed every 2–3 hours.—R.M.

Tabuchi, E., Narita, R., Ebi, Y. & Hosoda, T. (1953). **Studies on hydrocephalus of new born calves in Aomori, Akita and Iwate prefectures.**—*Exp. Rep. Govt exp. Sta. anim. Hyg., Tokyo.* No. 26. pp. 21-26. [In English. Abst. from authors' summary.] **101**

In the spring of 1949, many cases of hydrocephalus occurred in new-born calves in districts around Lake Towada. No causative bacteria were isolated. P.M., atrophy of the brain tissue, caused by the hydrocephalus resembled stillbirth in swine resulting from Japanese B encephalitis. Infection was believed to have occurred about the third month of pregnancy and coincided with outbreaks of Japanese equine encephalitis throughout the country.

Hale, J. H. & Witherington, D. H. (1953). **Encephalitis in racehorses in Malaya.**—*J. comp. Path.* **63,** 195-198. [Authors' summary modified.] **102**

The authors described the clinical symptoms and P.M. findings in encephalitis in Malayan racehorses. Serological evidence implicated the Japanese type B encephalitis virus as the aetiological agent.

Bang, F. B. & Gey, G. O. (1952). **Comparative susceptibility of cultured cell strains to the virus of Eastern equine encephalomyelitis.**—*Johns Hopk. Hosp. Bull.* **91,** 427-461. [Authors' summary modified.] **103**

Roller tube cultures of 13 established strains of rat cells derived from different types of mesenchymatous cells have varying susceptibilities to the virus of Eastern equine encephalomyelitis. This variation is not in general dependent on the malignancy of the cell line, nor on a known degree of cell exposure, since all the cell strains were tested when grown on glass without clot. A normal cell strain and its specific malignant cell derivative of *in vitro* origin demonstrate extremes of susceptibility. Certain other strains show slight to complete destruction—human tumour strains, complete to severe destruction.

Several cell strains of intermediate susceptibility continue to support virus growth for periods exceeding 4 months and through a series of transfers from tube to tube without renewed virus inoculation or renewal of cells.

The destruction of the cells in these persistently infected cultures may be focal in nature or so minimal that it does not greatly exceed that present in the uninfected cultures. The long continued presence of this virus in cultures of several lines of cells has shown no evidence of viral variation toward increased cell destruction. Loss of virus from continuous cultures previously supporting virus might be explained by a more rapid growth of cells than of virus, yet inhibiting factors in the media used could also contribute to this phenomenon.

Electron and phase microscope studies show that degrees of cell destruction by virus exist. Portions of the cell are destroyed before complete disintegration occurs.

Rozhkov, G. I. (1950). **[Carriers of equine infectious anaemia.]**—*Veterinariya, Moscow.* **27,** No. 8. pp. 10-15. [In Russian.] **104**

R. studied the aetiology of E.I.A. by observing its epidemiology and by experiment. Invariably the pathogenicity of the virus was directly proportional to the condition of the

horse. Hence, he stated, a well-kept horse was unlikely to succumb and, further, given a sufficiently long time-lapse during which the agent was inhibited, the latter would gradually lose its virulence and might eventually die. He suggested that contact between the host and the infective agent does not necessarily lead to infection, which occurs only when unfavourable ecological conditions weaken the host, thus making it susceptible and unable to resist the development of the virus.

To find out how E.I.A. becomes disseminated, R. made blood tests on a large number of horses on various farms from among (a) those recovered from acute forms of the disease, (b) those which had had mild attacks, and (c) those from areas where no clinical evidence was known. All the horses in category (a) and most of those in (b) were carriers and potentially infective whenever a change for the worse should occur in their environment. A few carriers were found among the (c) horses and the conclusion was that prevalence of carriers, with varying potential pathogenicity, was more widespread than hitherto supposed. This probably explained occasional sporadic outbreaks of E.I.A. where none was known before and where the possibility of outside contact could be eliminated. Evidence in all cases pointed to deleterious ecological factors as being responsible for reviving a latent pathogen.

R. stated that methods of control directed against the virus and then only when clinical signs appear are useless; the obvious method was to eliminate the factors tending to promote an outbreak, chief among a list of seven being inadequate feeding and bad management. In treatment, making good these two items plus isolation and symptomatic treatment should enable 90–95% of cases to recover in 1–2 months.—F.A.A.

Purchase, H. S., Burdin, M. L., Scott, G. R. & Brotherston, J. G. (1953). **Keeping qualities of live rinderpest vaccines.**—*Vet. Rec.* **65,** 590-592. [Authors' summary copied *verbatim*.] **105**

Caprinised rinderpest vaccine (K.A.G.) was as fully potent as when first made after $11\frac{1}{2}$ months' storage at $-4°$ to $-22°$F. under the conditions described. Lapinised rinderpest vaccine was fully potent after $14\frac{1}{2}$ months under similar conditions of storage.

Fischer, J. & Rampas, J. (1952). Dynamika morfologických změn experimentálně vyvolaných virových encefalitid (československý kmen a louping-ill). [**Morphological changes in experimental virus encephalitides (Czechoslovakian strain and louping-ill).**]—*Csl. Hyg. Epidemiol. Mikrobiol.* **1,** 49-56. [German summary.] [Abst. from abst. in *Bull. Hyg., Lond.* **28,** 515-516. (1953).] **106**

The histological changes produced in the brain by a virus of louping-ill type (strain Ha) isolated from cases of encephalitis in Czechoslovakia in 1946 [*V.B.* **20,** 1960] were investigated in mice inoculated i/p and killed at intervals up to the time of appearance of symptoms. The changes in mice infected i/p with louping-ill virus resembled those produced by the Ha strain, differing mainly in extent and in the more rapid rate of development. In both instances max. involvement occurred in the basal ganglia. The characteristic appearances are illustrated in photomicrographs.

Lucas, A. (1953). Une nouvelle variété du virus de la peste porcine. [**A variant of swine fever virus.**]—*Bull. Off. int. Epiz.* **40,** May. pp. 52-59. [English summary.] **107**

L. summarized observations made in France on an aberrant strain of virus apparently similar to those described in the U.S.A. in 1949-50. Protection can be provided by repeated vaccination with crystal violet vaccine or the use of larger quantities of serum prepared against standard strains of swine fever virus.

—J. T. Done.

Zeljko, M. (1953). La lutte contre la peste porcine en Yougoslavie. [**Control of swine fever in Yugoslavia.**]—*Bull. Off. int. Epiz.* **40,** May. pp. 74-86. [English summary.] **108**

Crystal violet (CV) vaccine is gradually replacing the serum-simultaneous method as the principal means of immunization, but repeated vaccination is advised on large farms in heavily infected areas. Research on the use of CV vaccine intradermally indicates that dosage and potency of the vaccine are more important than the route of inoculation. Lapinized virus is promising, but has not yet been tried extensively.—J. T. Done.

Nakamura, J. & Sugimura, K. (1953). Comparaison entre le vaccin formolé et le vaccin au cristal-violet contre le choléra du porc. [**Formolized and crystal violet vaccines in control of swine fever.**]—*Bull. Off. int. Epiz.* **40,** May. pp. 87-110. [English summary.] **109**

In laboratory trials crystal violet vaccine gave a better immunity than a formolized vaccine prepared from an identical sample of

blood, but when mixed tissues were used as the source of virus formolized vaccine was more effective than crystal violet vaccine. Spleen was superior to other organs as a source of virus for formolized vaccine.—J. T. Done.

Castagnoli, B. & D'Amore, A. A. (1953). Tentativi di trasmissione della peste suina mediante l'urina di suini sieroinfettati. **[Infectivity of urine from pigs vaccinated against swine fever by a virus-serum method.]**—*Atti Soc. ital. Sci. vet., Sanremo*, 1952. **6**, pp. 520-525. [English and French summaries.] **110**

Samples of urine taken from 28 pigs, 5, 10, 15 or 20 days after they had been vaccinated against swine fever by a virus-serum simultaneous method, were administered subcutaneously, *per os* or by scarification to susceptible pigs, which remained healthy.—R.M.

Dunne, H. W., Smith, E. M. & Runnells, R. A. (1953). **The relation of infarction to the formation of button ulcers in hog cholera-infected pigs.**—*Proc. 89th Ann. Meet. Amer. vet. med. Ass. Atlantic City. June 23-26th*, 1952. pp. 155-160. [Abst. from authors' summary.] **111**

The authors examined sections of button ulcers from the colons of pigs experimentally infected with swine fever. Infarction resulting from degeneration of blood vessels played a major part in the formation of button ulcers. Similar ulceration of gastric mucosa also appeared to be the result of infarction. No salmonella were isolated from the blood or intestines of animals having intestinal ulcers.

Schwarte, L. H. (1953). **Transmission experiments with hog cholera virus.**—*Proc. 89th Ann. Meet. Amer. vet. med. Ass. Atlantic City. June 23-26th*, 1952. pp. 151-153. Discussion: pp. 153-155. [Author's summary modified.] **112**

The study of field strains of swine fever virus showed considerable variation in pathogenicity as determined by titration experiments. A number of strains appeared to be unstable. The virulence of some strains increased as the result of serial passage through susceptible swine while that of others decreased. Considerable variation in the antigenic pattern was demonstrated by means of serum-protection tests. Limited studies on some of the so-called variant strains indicated that highly pathogenic strains did not necessarily have good antigenic properties, and strains of comparatively low virulence may have excellent antigenic properties.

Bankowski, F. A. & Wood, M. (1953). **Experimental vesicular exanthema in the dog.**—*J. Amer. vet. med. Ass.* **123**, 115-118. [Authors' summary modified.] **113**

Dogs exposed by intradermal-lingual injections were found to be irregularly susceptible to three immunologically distinct types of vesicular exanthema virus (types A, B, and F). The lesions at the points of inoculation were mild, characterized by erosion of epithelium, blanching, and extension. They were often accompanied by a slight rise in temperature. The virus was recovered sixteen hours after inoculation intradermal - lingually from the spleen of a dog which had fever, but it was not re-isolated from 2 afebrile animals.

Hsiung, G.-D. & Stafseth, H. J. (1952). **Canine distemper. I. Bacteriological studies. II. The value of certain therapeutic agents against the bacterial infections in dogs affected with distemper.**—*Cornell Vet.* **42**, 223-231 & 232-237. **114**

I & II. Apart from *Haemophilus bronchisepticus* in about one third of the distemper cases there was a similar bacterial flora in the eyes and noses of affected and non-affected dogs. Penicillin ointment alone, out of 8 drugs tested, was effective against secondary infections.

—K. G. Towers.

Ajmerito, G. (1953). Contributo allo studio dei dati sfigmomanometrici nel cimurro e del loro significato prognostico. **[Blood pressure as an aid to the prognosis of dog distemper.]**—*Atti Soc. ital. Sci. vet., Sanremo.* 1952. **6**, pp. 222-225. [English and French summaries.] **115**

The author measured the blood pressure of the femoral artery in 420 cases of distemper in dogs. Low pressure was associated with poor prognosis.—R.M.

Goret, P., Martin, L.-A. & Joubert, L. (1952). Essais d'immunisation du furet contre la maladie de Carré, par le virus poliomyélitique souche Lansing, — Échec. Isolement à partir du furet d'un virus non encore identifié. (Adaptation du virus Lansing au furet?). **[Attempts to immunize ferrets against canine distemper using the Lansing strain of poliomyelitis virus.]**—*Bull. Acad. vét. Fr.* **25**, 405-411. **116**

The first series of experiments showed that large doses of poliomyelitis virus (Lansing or W. W. strain) gave no protection to ferrets one month later against canine distemper virus, inoculated by various routes. Later, some ferrets

were found to die about 3–4 weeks after the poliomyelitis injections, especially during certain months of the year.

Poliomyelitis virus injected by any route was found to incubate 8–9 days, and then to produce various symptoms (not including a flaccid paralysis), but serial inoculations in ferrets only, tended to produce more catarrhal symptoms. The authors speculated whether the virus might be a special variant of the distemper virus.—B. G. Clarke.

Flatla, J. L. (1953). Vaksine med inaktivert virus i hvalpesjukeprofylaksen hos hund. **[Distemper vaccine from inactivated virus.]** —*Nord. Vet Med.* **5,** 160-165. [In Norwegian. English and German summaries.] **117**

A trial was carried out with a proprietary vaccine containing killed virus and formolized bacteria which are commonly isolated from dogs affected with distemper. Of 199 dogs vaccinated in Norway during two years only 4 contracted distemper.—J. Edwards.

Mansi, W. (1953). **Rubarth's disease (canine virus hepatitis). I. Reaction of dogs to the conjunctival instillation of the virus.**—*J. comp. Path.* **63,** 236-246. [Author's summary modified.] **118**

A conjunctival reaction to the virus of canine hepatitis is described and the serological and immunological findings following inoculation are discussed. It is stated that dogs can be actively immunized by instillation of the living virus into the conjunctival sac and trials under field conditions are recommended. There are 3 charts illustrating the clinical picture in relation to the different experimental routes of infection.

Coffin, D. L. & Cabasso, V. J. (1953). **The blood and urine findings in infectious canine hepatitis.**—*Amer. J. vet. Res.* **14,** 254-259. **119**

Clinical laboratory studies of 22 confirmed fatal cases of canine virus hepatitis showed that the blood picture was characterized by a leucopenia, a variable sedimentation rate and variable haemoglobin values and normal urea nitrogen. In 100 animals which recovered, the blood picture revealed a leucopenia and an increased sedimentation rate. The urine was of normal density, but contained albumin and increased urinary bilirubin. The sugar and urea nitrogen levels were within normal limits.

—J. A. Nicholson.

Lackey, M. D., Eichman, P. L. & Havens, W. P., Jr. (1953). **Hepatitis in laboratory mice.**—*J. infect. Dis.* **93,** 14-20. [Authors' summary modified.] **120**

Attempts to adapt human hepatitis virus to various strains of mice with or without treatment with cortisone, A.C.T.H., urethane, or roentgen radiation were apparently unsuccessful. In the course of experiments with two strains of albino mice a transmissible form of hepatitis was produced in control animals as well as in those inoculated with presumably infectious material. The available evidence indicated that this disease was inherent in these strains of mice and unrelated to human hepatitis.

Scherr, G. H. (1953). **Experimental studies on the pathogenesis of encephalomyocarditis virus for mice. I. The factor of sex of animal as affecting pathogenicity of inoculum and susceptibility to infection.**—*J. Bact.* **66,** 105-111. [Abst. from author's summary.] **121**

When male and female groups of mice were injected with encephalomyocarditis viral suspensions prepared from brains of infected male and female mice and appropriately diluted with brain homogenates from healthy male and female mice, a series of mortality curves was obtained which suggested the presence of a factor or factors in the brains of female mice which enhances the mortality rate of male and female animals and which is neutralized partially by some factor present in the brains of male animals. S. demonstrated the presence of such factors in both apparently healthy mice and mice infected with encephalomyocarditis virus.

Reagan, R. L. & Brueckner, A. L. (1953). **Electron microscopic studies of the haemagglutination-inhibition (H.I.) test for Newcastle disease virus (N.D.V.).**—*Vet. Med.* **48,** 367-368. [Authors' summary modified.] **122**

Electron micrographs of r.b.c. from the H.I. test for Newcastle disease virus were reproduced. Virus-like particles were evident as adhering to the surface of agglutinated r.b.c. from mixtures of virus, saline, and cells and of virus, negative serum, and cells. No virus-like particles were evident in the controls or in mixtures of virus, positive serum, and cells.

Schmittle, S. C. (1953). **Studies on Newcastle disease. XI. Newcastle disease antibodies in the serum globulin fractions of the chicken.** —*Proc. 89th Ann. Meet. Amer. vet. med. Ass. Atlantic City. June 23-26th,* 1952. pp. 143-147. [Author's summary modified.] **123**

Low temperature ethanol fractionation of avian Newcastle disease-immune serum resulted in the isolation of an electrophoretically pure γ-globulin fraction that was rich in both haemagglutination-inhibition and serum neutralizing activities. These activities were biochemically different and probably represented different antibodies. This was strongly indicated by the fact that one of the fractions contained only serum neutralizing activity.

GREEN, M., STAHMANN, M. A. & RASMUSSEN, A. F., JR. (1953). **Protection of embryonated eggs infected with infectious bronchitis or Newcastle disease virus by polypeptides.**—*Proc. Soc. exp. Biol., N.Y.* **83,** 641-643. [Authors' summary copied *verbatim.*] **124**

Polylysine was found to exert a marked protective effect in embryonated eggs subsequently infected with recently isolated infectious bronchitis virus. This protective effect was significantly less after several egg passages and with strains of infectious bronchitis which were completely egg adapted. Embryonated eggs infected with Newcastle disease virus were also protected by polylysine.

WONG, S. C. & JAMES, C. G. (1953). **The susceptibility of the agents of chronic respiratory disease of chickens and infectious sinusitis of turkeys to various antibiotics.**—*Poult. Sci.* **32,** 589-593. [Authors' summary modified.] **125**

Of the 16 antibiotics examined *in ovo* for chemotherapeutic activity against the agents of infectious sinusitis of turkeys and of chronic respiratory disease of chickens, magnamycin [a product of *Streptomyces halstedii*] and terramycin were found to be the most effective. The significance of this finding was briefly discussed.

DRACHMAN, T. S. (1953). **A recent outbreak of psittacosis in Upper Westchester County, New York.**—*Amer. J. publ. Hlth.* **43,** 165-172. **126**

Thirteen out of 27 parakeets in a large store died from psittacosis, and 7 human beings contracted psittacosis from this source. In another outbreak a parrot and two parakeets became infected and transmitted psittacosis to three members of the household in which they were kept. These outbreaks followed the repeal of a law prohibiting the sale of parrots and parakeets in New York State.—R.M.

BERTANI, G. & WEIGLE, J. J. (1953). **Host controlled variation in bacterial viruses.**—*J. Bact.* **65,** 113-121. **127**

The authors discussed a detailed analysis of variations in two different bacteriophages and analysed the behaviour of phages in different growth cycles.—E. A. HIRSCH.

KEATON, R., NASH, B. J., MURPHY, J. N. & IRONS, J. V. (1953). **Complement fixation tests for murine typhus on small mammals.** *Publ. Hlth Rep., Wash.* **68,** 28-30. [Authors' summary modified.] **128**

Endemic typhus rickettsia were recovered from the brains of three house mice taken from human habitations, and from a pool of 20 fleas collected from two opossums. House mice trapped in fields were uniformly negative. Unequivocal evidence of typhus in small mammals other than commensal rats and mice was not obtained. Serological findings on the pack rat (*Neotoma floridana*), the cotton rat, and the opossum were of doubtful significance.

See also absts. **210** (vesicular exanthema in swine); **297/298** (reports, Gt. Britain); **299** (report, Isle of Man); **300** (report, Australia); **303** (book, liver injury).

IMMUNITY

OUCHTERLONY, O. (1953). **Antigen—antibody reactions in gels. IV. Types of reactions in coordinated systems of diffusion.**—*Acta path. microbiol. scand.* **32,** 231-240. [In English.] **129**

Egg albumen and rabbit serum were used to illustrate the application of the interference phenomenon in a gel diffusion method for precipitin and flocculation reactions. "Reactions of partial identity" were reported as well as those of "identity" and "non-identity".—N. DEAN.

SCHIØTT, C. T. (1953). **Preliminary studies on antigen-antibody reactions in gels according to Ouchterlony's method.**—*Acta path. microbiol. scand.* **32,** 251-257. [In English.] **130**

Using the interference phenomenon in a gel diffusion technique, S. demonstrated specific antibodies in the blood of human patients hypersensitive to horse dander.—N. DEAN.

EYQUEM, A. & OUDOT, J. (1953). Observations biologiques chez des chèvres ayant subi des iso-transplantations de rate. **[Effects on goats**

of transplantation of the spleen.]—*C. R. Acad. Sci. Paris.* 237, 275-276. 131

Spleens were transplanted from donor goats to the neck region of recipient goats. Five days later the blood of recipient goats contained antibodies against r.b.c. of the donor (Coombs test). Biopsy of the transplant at 10 days revealed signs of necrosis. When the transplant was removed at 15 days it showed evidence of phagocytosis of r.b.c. which resulted in anaemia in some of the recipient goats.—R.M.

SIMONSEN, M., BUEMANN, J., GAMMELTOFT, A., JENSEN, F. & JØRGENSEN, K. (1953). **Biological incompatibility in kidney transplantation in dogs. I. Experimental and morphological investigations.**—*Acta path. microbiol. scand.* 32, 1-35. [In English.] 132

SIMONSEN, M. (1953). **Biological incompatibility in kidney transplantation in dogs. II. Serological investigations.**—*Ibid.* 36-84. [In English.] 133

I. Dog-to-dog kidney transplants were made, usually using polyethylene tube anastomoses for vessels and ureters. These were inefficient as even auto-transplants were relatively short-lived. However the dogs survived long enough for kidney transplants to undergo characteristic morphological and histological changes, depending on whether they were auto transplants, primary transplants, re-transplantations or secondary transplants (*e.g.* after primary skin transplants). Photomicrographs illustrating the text and detailed descriptions of each case in the important re-transplantation group, provided much basic material for the subsequent discussion.

II. Evidence of antibody formation in kidney transplanation experiments was only procured by methods for detecting incomplete antibodies (haemagglutinins), while complement-fixation tests and measurement of complement titres failed. These findings and the particular kidney lesions found (perivascular mononuclear infiltrations) were explained by immune processes, started by specific antigens not confined to the kidney. This followed from a long and critical review and discussion of relevant literature with regard to biological incompatibility, and a cogent argument as to the possible interpretation of the experimental results.—B. G. CLARKE.

STOHLMAN, F., JR. (1953). **Enhancement of canine isohemagglutinin A by a heat labile serum factor, probably complement.**—*Proc. Soc. exp. Biol., N.Y.* 82, 562-566. [Author's summary modified.] 134

S. gave data which suggest that the enhancing effect of a heat-labile component of canine serum on the agglutinative capacity of the canine isohaemagglutinin A is due to complement. Although g. pig and human serum were ineffective, bovine serum in most instances restored maximum activity to a previously inactivated system. Further data suggested that this enhancement, which appears to be unique so far as erythrocyte isoantibodies are concerned, is related to conglutination.

CAMBEROS, H. R. (1952). Observaciones sobre las acciones inducidas experimentalmente con extracto de mucosa gástrica de equino. [**Experimental production of pulmonary emphysema by injection of extracts of equine gastric mucosa.**]—*Gac. vet., B. Aires.* 14, 247-264. 135

In g. pigs and horses infected intravenously with an aqueous extract of the gastric mucosae of horses, a pronounced increase of cardiac and respiratory activity was observed, associated with sweating and a nasal discharge. These symptoms compared closely with those resulting from the i/v injection of histamine. —A.S.

See also abstr. **12** (preparation of antigen for detection of agglutinins for *V. fetus*); **28** (B.C.G.); **30** (TB. and leprosy); **31-32** (serological diagnosis of Johne's disease); **42** (effect of ammonium sulphate on various antigenic types of *S. pullorum*); **49** (a rapid agglutination test for estimation of *Brucella* antibodies in milk); **54** (a dry *Brucella* antigen); **61** (leptospiral macroscopic agglutinating antigens); **87** (bivalent F. & M. disease vaccine); **91** (avianized street rabies virus); **92** and **94** (influenza virus); **105** (rinderpest vaccines); **108-110** (swine fever); **117-118** (distemper); **122-124** (Newcastle disease); **148** (serological and allergic tests for *Cysticercus*).

PARASITES IN RELATION TO DISEASE [ARTHROPODS]

SHANAHAN, G. J. & WRIGHT, P. (1953). **Fogging with BHC for control of sheep lice.**—*Agric. Gaz. N.S.W.* 64, 65-66, 90-94, 121-122 & 160-163. 136

From the results of trials of "fogging" with benzene hexachloride for the eradication of *Damalinia ovis* on sheep, using various techniques and varying the size of the "fog" particle and the concentration of the drug, the authors concluded that this method is unsatisfactory.—D. MURRAY.

DU TOIT, R. & FIEDLER, O. G. H. (1953). **The protection of sheep against blowfly strike. I.—An evaluation of certain organic insecticides.** —*Onderstepoort J. vet. Res.* **26**, 65-81. [Abst. from authors' summary.] **137**

Higher concentrations of the new organic insecticides are necessary to achieve a complete kill of first instar larvae of *Lucilia cuprina*, when contact with the insecticides is short, than for mature larvae. The former are able to free themselves rapidly from the toxicant in the nutritional medium owing to their feeding habits.

The authors studied the larvicidal action of 11 synthetic insecticides and determined the m.l.d. on young maggots within a nutritional medium. They described a new biological assay method for determining the larvicidal value of wool treated with various insecticides.

Insecticides of equal toxicity to first stage blowfly larvae afford different lengths of protection against strike even when their active ingredients are of the same concentration.

The authors emphasized the importance of the larvicidal properties of insecticides in protecting sheep over long periods; their more transitory repellent properties to adult blowflies " were " less important.

The biological assay method revealed that gamma B.H.C., dieldrin and aldrin (chlorinated derivatives of naphthalene), and to a lesser extent chlordane (5, 8-endo-dichloromethylene-4, 9-dihydro-2, 3, 5, 6, 7, 8-hexachloro-endane) and toxaphene (chlorinated camphene) possess properties of diffusion along the wool fibres into the constantly expanding zone of growing wool. Compounds of the D.D.T. group have no such properties. Gamma B.H.C., dieldrin and aldrin were the most suitable compounds.

HARRISON, R. A. (1953). **Toxicity to houseflies of paints containing DDT.**—*N.Z. J. Sci. Tech.* Ser. B. **35**, 43-44. [Author's summary modified.] **138**

Flat oil paint containing 2·5 and 5·0% D.D.T. produced 95 and 100% mortality of houseflies respectively after a period of 1262 days. Oil-bound water paint containing 1·0, 2·5 and 5·0% D.D.T. was almost ineffective against houseflies, as was water paint containing 2, 3, 4 and 5% D.D.T.

D.D.T.-resistant houseflies were not controlled satisfactorily with flat oil paint containing D.D.T.

SPEAR, P. J. & SWEETMAN, H. L. (1952). **Continuous vaporization of insecticides with special reference to DDT.**—*J. econ. Ent.* **45**, 869-873. **139**

The authors discussed the advantages and disadvantages associated with the continuous vaporization of suitable insecticides for pest control. The method which is applicable to buildings is based on the evaporation of one gram of the insecticide per day, for each 15,000–25,000 cu. feet. D.D.T. vapour when produced at 120°C., condensed to form droplets of a particle size of 0·5–5·0 μ, and in this form diffused throughout the building. The lethal effect against non-resistant flies was satisfactory. The D.D.T. particles, which could remain airborne for several days, eventually became deposited, mainly on horizontal surfaces, where they remained as residual insecticide.

—D. W. JOLLY.

DAVIES, D. M. (1953). **Longevity of black flies in captivity.**—*Canad. J. Zool.* **31**, 304-312. **140**

Adult female *Simulium* (mostly *S. venustum*) lived up to 63 days in captivity. Mortality increased during warm weather. Details of handling were given.—R. GWATKIN.

DALMAT, H. T. (1952). **Longevity and further flight range studies on the blackflies (Diptera, Simuliidae), with the use of dye markers.**—*Ann. ent. Soc. Amer.* **45**, 23-37. **141**

Wild *Simulium metallicum*, *S. ochraceum*. and *S. callidum* were caught, dye marked, and released. The marked flies, mainly *S. metallicum*, were subsequently recovered at distances from the release point of up to 9·7 miles. In longevity studies using a similar technique, the max. periods recorded were 85 days for *S. metallicum*, 27 days for *S. ochraceum*, and 20 days for *S. callidum*.—D. W. JOLLY.

GURR, L. (1953). **A note on the occurrence of *Linguatula serrata* (Fröhlich, 1789) in the wild rabbit, *Oryctolagus cuniculus*, in New Zealand.**—*N.Z. J. Sci. Tech.* Ser. B. **35**, 49-50. [Abst. from author's summary.] **142**

G. recorded *L. serrata* in a wild rabbit from Waikouaiti, Otago. He noted records of the parasite in other hosts in New Zealand.

THEILER, G & ROBINSON, B. N. (1953). **Ticks in the South African zoological survey collection. Part VII.—Six lesser known African rhipicephalids.**—*Onderstepoort J. vet. Res.* **26**, 93-136. [Abst. from authors' summary.] **143**

The authors described the female, nymph

and larva of *Rhipicephalus follis*, of which species only the male had been described previously. *R. follis* is not easily recognized; it is anticipated that it is not confined to Dordrecht, Cape Province, but that it is more widespread than present records indicate.

LIPOVSKY, L. J. (1951). **A washing method of ectoparasite recovery with particular reference to chiggers (Acarina-Trombiculidae).**—*J. Kans. ent. Soc.* **24**, 151-156. [Abst. from abst. in *Trop. Dis. Bull.* **50**, 260. (1953).] **144**

L. described a method of removing parasitic mites and other minute delicate arthropods from the hair or feathers of their hosts. The dead mammal or bird was first chilled at 0° to 4°C.—which probably has the effect of numbing and loosening the parasites—and was then brought to room temperature and washed in a soln. of a surface-active detergent. A very small animal, such as a mouse was shaken up in a considerable volume of liquid in a glass wide-necked bottle. With larger animals it is best to shake and wash the skin or even parts of the skin.

Many of the mites recovered continued to live in the watery detergent solution for some weeks at a temp. just above freezing point.

See also absts. **79** (*Boophilus microplus*, a vector of anaplasmosis); **298** (report, Gt. Britain); **300** (report, Australia).

PARASITES IN RELATION TO DISEASE [HELMINTHS]

KRULL, W. H. & MAPES, C. R. (1953). **Studies on the biology of *Dicrocoelium dendriticum* (Rudolph, 1819) Looss, 1899 (Trematoda: Dicrocoeliidae), including its relation to the intermediate host, *Cionella lubrica* (Müller). IX. Notes on the cyst, metacercaria, and infection in the ant, *Formica fusca*.**—*Cornell Vet.* **43**, 389-410. [Authors' summary modified.] **145**

On the basis of findings reported in this and in an earlier paper [*V.B.* **23**, 1973] the authors determined that the ant, *F. fusca*, is the second intermediate host of *D. dendriticum*, in New York State. Experimental infestations were obtained in yearling lambs by feeding them either infected ants or encysted metacercariae removed from ants.

It is to be noted that this is a three and not a two-host cycle. The authors stated that it is the first time that an ant has been associated with the life cycle of a trematode. As many as 128 encysted metacercariae were found in the abdomen of an ant. An average of 31% of ants from the pasture under study was infested.

KENDALL, S. B. (1953). **The life-history of *Limnaea truncatula* under laboratory conditions.**—*J. Helminth.* **27**, 17-28. [Abst. from author's summary.] **146**

K. described the life-history of *L. truncatula* under laboratory conditions. Sexual maturity was reached in 23 days and egg laying continued for the greater part of the snail's life. Under favourable environmental conditions each snail laid about 60 eggs in a single day and a total of more than 3,000 in a life of approx. one year. Eggs were laid during every month and at temperatures as low as 10° to 11°C. The incubation period depended on atmospheric temperature. The snail remained fully active at 1·5°C., temperatures above 20°C. were favourable and temperatures above 25°C. were harmful.

BORAY, J. (1951). [**Atebrin in treatment of tapeworm infestation in dogs.**]—*Acta vet. hung.* **1**, 279-285. [In Russian. English summary.] **147**

An account of the treatment, with good results, of over 40 dogs infested with species of *Taenia* and with *Dipylidium caninum*, with 0·04 g. of atebrin per kg. body wt.—F.A.A.

SZAFLARSKI, J., WIŚNIOWSKI, J. & DUBIEL, E. (1952). Rozpoznawanie wągrów wąskoszyjnych u owiec za pomocą metod serologicznych i alergicznych. [**Serological and allergic tests for the diagnosis of *Cysticercus tenuicollis* in sheep.**]—*Méd. vét., Varsovie.* **8**, 537-539. [In Polish.] **148**

Intradermo-palpebral tests on 29 sheep for the presence of cysts of *C. tenuicollis*, using antigen prepared from scolices gave results that were 93·3% accurate.—J. R. MITCHELL.

PIANA, G. (1953). Disprotidemie ed alterazioni dei latte. [**Changes in the composition of milk and plasma proteins of cows with *Echinococcus* cysts.**]—*Atti Soc. ital. Sci. vet., Sanremo*, 1952. **6**, pp. 94-96. [English and French summaries.] **149**

While investigating milk of abnormal composition from an unstated number of cows by means of electrophoretic analysis, the authors found that milk, low in casein, fats and lactic acid was associated with the presence of *Echinococcus* cysts in the body.—R.M.

ROLLINSON, D. H. L. (1953). **A comparison of the effects of phenothiazine dosage with and without a mineral lick supplement on indigenous calves in Uganda.**—*J. comp. Path.* **63,** 159-170. [Abst. from author's summary.] **150**

R. described an experiment comparing the effects of phenothiazine alone, phenothiazine plus mineral lick and mineral lick alone on the body wt. increase in growing calves. In spite of the reduction in egg count by phenothiazine there was no significant difference between the body wt. increase of the control group and that in the group receiving phenothiazine alone, whereas the body wt. of the group receiving only a mineral lick supplement increased slightly in spite of heavy parasitic infestation.

Body wt. of calves receiving both phenothiazine and mineral lick increased considerably.

PRICE, D. A., HARDY, W. T. & BOUGHTON, I. B. (1953). **Phenothiazine-salt mixture for control of *Haemonchus contortus* in range sheep.**—*J. Amer. vet. med. Ass.* **123,** 132-135. [Authors' summary modified.] **151**

Two flocks of sheep were used in a seven-year study to determine whether a 1:9 phenothiazine-salt mixture would serve as the sole means of controlling *H. contortus*. One flock had continual access to a 1:9 phenothiazine-salt mixture during the entire period; the other flock, in an adjoining pasture, served as controls and received salt only. Data obtained from egg counts, estimations of larval development, and actual worm counts at necropsy, all showed that the 1:9 phenothiazine-salt mixture satisfactorily controlled *H. contortus* in range sheep.

FOSTER, A. O. (1953). **Certain net effects of the free-choice administration of phenothiazine to sheep.**—*J. Parasit.* **39,** No. 4—Sect. 2. p. 36. [Only abst. given.] **152**

An account of an 11-year experiment in helminth control in a flock of sheep by means of salt licks containing phenothiazine 1:9. The salt lick mixture was withdrawn for 165 days half-way through the experiment. The drug did not cause any ill effects. Helminths were kept under control though not eradicated. There was no mortality or morbidity attributable to infestations, but some losses occurred during the period when the salt lick mixture was withdrawn; they were checked when therapeutic doses of the drug were given and the salt lick mixture had been made available again.

—F.E.W.

GORDON, H. McL. (1953). **Studies on anthelmintics for sheep: chlorinated benzenes.**—*Aust. vet. J.* **29,** 164-167. **153**

When other drugs were temporarily in short supply during the second world war, tests were made of the anthelmintic efficiency in sheep of chlorinated benzenes, some of which are still included in proprietary drenches marketed in Australia. The efficiency of the drugs was determined by the reduction in egg count (McMaster technique) calculated from the mean of counts made during 10–14 days before treatment and from 7–20 days after treatment.

The drugs tested were effective only when injected into the abomasum. Orthodichlorobenzene was more effective than paradichlorobenzene against *Haemonchus contortus* and *Trichostrongylus* spp. Tri- and tetrachlorobenzene, and bromobenzene were ineffective against these worms, and none of the drugs were effective against *Oesophagostomum columbianum, Fasciola hepatica,* or amphistomes.

The efficiency of orthodichlorobenzene was sufficient to warrant consideration of its use against *Trichostrongylus* spp. when other drugs were in short supply, but its toxicity at doses required for high efficiency, and the taint which was found in mutton from treated animals, militated against its use.

—R. I. SOMMERVILLE.

ENIGK, K. (1953). Behandlung des Lungenwurmbefalles der Wiederkäuer durch Aërosole. **[Treatment of lungworm infestation of ruminants with aerosols.]** — *Mh. prakt. Tierheilk.* **5,** 14-22. **154**

E. tested the efficiency against lungworm infestation of 14 anthelmintics applied to affected cattle and sheep as aerosols, using a special apparatus designed for the purpose, which delivered 75 l. of aerosol/min. and which he described and illustrated. In tests on sheep which were killed and examined immediately after treatment, it was found that oily solutions were more slowly absorbed and were therefore suitable, while alcoholic solutions, which readily penetrated the bronchial and alveolar mucosae, were dangerous. Of the preparations tested, synthetic "ascaridol" was effective against *Dictyocaulus filaria* after such treatment for 6 min.; when santonin was added its efficiency against *Protostrongylus rufescens* and *Muellerius capillaris* was improved. The addition of 1% "aludrin" (a preparation related to adrenaline) counteracted the contraction of the

bronchi caused by the anthelmintic. A total of 280 sheep and 31 cattle were treated.

—H. Behrens.

Vegors, H. H. & Porter, D. A. (1953). **Experimental cross transmission of *Strongyloides papillosus* in ruminants.**—*Proc. Helm. Soc. Wash.* **20,** 91-92. [Abst. from authors' summary.] **155**

The authors cross-transmitted larvae of *S. papillosus* experimentally from cattle and sheep to two lambs, two kids and a calf. The strains are more easily transmitted to the species of host they inhabit in natural circumstances.

Koutz, F. R. & Groves, H. F. (1953). ***Strongyloides stercoralis* from a dog in Ohio.** —*J. Amer. vet. med. Ass.* **122,** 211-213. **156**

A dog of unspecified age had diarrhoea; faecal examination revealed the presence of ova of *Ancylostoma* and *Trichuris,* together with larvae of *S. stercoralis.* The animal died and P.M. examination revealed extensive haemorrhagic enteritis and areas of consolidation in the lungs. Many adult *Strongyloides* were recovered from the gut and the authors implied that these worms were the cause of death.

—Jas. G. O'Sullivan.

Herlich, H. (1953). **On the migratory behavior of the larvae of *Neoascaris vitulorum* (Goeze, 1782) Travassos, 1927 in white mice.**—*Proc. Helm. Soc. Wash.* **20,** 124-126. [Abst. from author's summary.] **157**

In mice infected by feeding them embryonated eggs of *N. vitulorum,* the larvae manifested a tracheal type of migration similar to that of *Ascaris equorum* and *A. lumbricoides.* Attempts to infect mice prenatally failed.

Enzie, F. D. & Colglazier, M. L. (1953). **Toluene (methylbenzene) for intestinal nematodes in dogs and cats.**—*Vet. Med.* **48,** 325-328 & 341. **158**

Toluene, in doses of 0·1 ml. per lb. body wt. was 97% effective against ascarids, 87% against hookworms and 39% against whipworms in dogs, and nearly 100% effective against ascarids and hookworms in cats. The drug compared favourably with *n*-butyl chloride, but vomiting was fairly common.

—M. L. Clarke.

Schwabe, C. W. (1950). **Studies on *Oxyspirura mansoni,* the tropical eyeworm of poultry. IV. Methods for control.**—*Proc. Hawaii. ent. Soc.* **14,** 175-183. [For previous parts, see *V.B.* **23,** 3117 & 3428; and **21,** 1054.] **159**

Methods for controlling *O. mansoni* were investigated. The mechanical removal of the parasite from the conjunctival sac, and therapeutic methods directed against the parasite in the final host, were dismissed as impractical or ineffective. S. recommended control of the intermediate host, the cockroach, *Pycnoscelus surinamensis,* by suitable housing and general hygiene, together with the weekly application of 1% benzene hexachloride, chlordane (a chlorinated hydrocarbon), or D.D.T.

—D. W. Jolly.

Mackie, A. & Raeburn, J. (1952). **Preparation of 2 : 3-dihydro-3-ketobenzo-1 : 4-thiazine derivatives as possible anthelmintics.**—*J. chem. Soc.* March 1952. 787-790. [Authors' summary modified.] **160**

Derivatives of 2:3-dihydro-3-ketobenzo-1:4-thiazine, prepared mainly from the diazonium compound from the 6-amino-derivative, had practically no effect on *Ascaris lumbricoides in vitro.* Nearly all the derivatives had a paralysing effect on *Fasciola hepatica.*

Stoll, N. R. (1953). **Axenic cultivation of the parasitic nematode, *Neoaplectana glaseri,* in a fluid medium containing raw liver extract.** —*J. Parasit.* **39,** 422-444. [Abst. from author's summary.] **161**

S. described a method of culturing *Neoaplectana glaseri,* a nematode parasite of beetles, in the absence of bacteria in fluid media. The worm developed and multiplied through more than one generation in acid veal or beef heart infusion broth supplemented with raw liver extract. This extract was prepared without heat, acidified, and sterilized by Seitz filtration. Shaking the cultures in the dark produced larger yields. The stock culture strain, isolated from a Japanese beetle larva and rendered bacteria-free in 1944, has been carried serially on tissue (usually kidney) on glucose agar slants. It has retained infectivity for its host.

See also absts. **210** (trichinosis in swine); **298** (report, Gt. Britain); **300** (report, Australia).

SPONTANEOUS AND TRANSMISSIBLE NEOPLASMS AND LEUCAEMIAS [INCLUDING FOWL PARALYSIS]

GÖTZE, R. & ZIEGENHAGEN, G. (1953). Zur Frage der Ursachen und der Bekämpfung der Rinderleukose. I. Erblichkeit, züchterische Massnahmen. [**Aetiology and control of leucosis in cattle. I. Inheritance of the disease and control by breeding.**]—*Fortpfl. Bes. Haustiere.* **3,** 55-59. [English summary.] **162**

In view of the increasing incidence of leucosis in cattle in Germany, the authors reviewed the present position of knowledge of hereditary factors in causation of the disease in mice and in cattle. They suggested a method of selective breeding from unaffected individuals as a means of control.—R.M.

HOFMEYR, C. F. B. (1953). **Cholecystostomy in a dog.**—*J. S. Afr. vet. med. Ass.* **24,** 81-86. **163**

A clinical account of jaundice in a 9-month-old bitch found to be due to obstruction of the common bile duct by a neoplasm (type not specified). Cholecysto-duodenostomy was successfully performed.—R.M.

COTTRAL, G. E. (1953). **The enigma of avian leukosis.**—*Proc. 89th Ann. Meet. Amer. vet. med. Ass. Atlantic City. June 23-26th,* 1952. pp. 285-293. [Abst. from author's summary.] **164**

C. reviewed the aetiology, transmission and control of the group of neoplastic diseases collectively called the avian leucosis complex. The incidence of avian leucosis, particularly visceral lymphomatosis has greatly increased in the poultry population during the past 30 years, while the comparable diseases of the lymphoblastoma group in the other domestic animals have not increased at such an alarming rate. C. suggested that the increase in infection rate was brought about by mass production methods of raising chickens.

DARCEL, C. LE Q. (1953). **Observations on the effect of triethylene melamine, aminopterin, and A-methopterin on the growth of transplantable avian lymphoid tumours.**—*Brit. J. Pharmacol.* **8,** 278-280. [Author's summary copied *verbatim.*] **165**

Triethylene melamine given orally had no significant effect on the growth of transplantable avian lymphoid tumours. Given parenterally before the appearance of palpable tumours, the drug had some inhibitory effect on tumour growth but was highly toxic. If treatment was delayed until the tumour appeared there was no significant effect on the survival time of inoculated chicks.

Aminopterin and A-methopterin given orally to chicks bearing tumour strain RPL12 had no significant effect on growth. The absence of toxic effects following much heavier dosage suggests that the chicks did not absorb the drug in sufficient quantity.

NUTRITIONAL AND METABOLIC DISORDERS

KNODT, C. B. & ROSS, E. B. (1953). **Penicillin in milk replacements for dairy calves.**—*Proc. Soc. exp. Biol., N.Y.* **82,** 663-665. [Authors' summary copied *verbatim.*] **166**

Feeding of 0·5 g of potassium penicillin per 100 lb of milk replacement to Holstein bull calves resulted in a decreased rate of gain in body weight and growth in height at the withers in this experiment. Feeding of 0·1 g, 0·3 g, 0·9 g, and 2·7 g of procaine penicillin also resulted in decreased growth rates in terms of mean gains in body weight and mean increase of height at the withers in this trial.

CHANCE, C. M., SMITH, C. K., HUFFMAN, C. F. & DUNCAN, C. W. (1953). **Antibiotics in rumen digestion and synthesis. III. The effect of aureomycin on rumen microorganisms, with special reference to the streptococci and coliform groups.**—*J. Dairy Sci.* **36,** 743-751. [Authors' summary modified.] **167**

The authors studied the effect of aureomycin on the total bacterial counts and the streptococci and coliform groups in rumen ingesta and faeces in two steers with fistulas of the rumen.

The pH of the rumen content declined for about 6 to 8 hours after feeding, with only slight increase at the end of 10 hours. When aureomycin was included in the ration, the pH was not so low as when the aureomycin-free ration was fed, the total bacterial count of the rumen contents and faeces increased and the number of rumen streptococci decreased. The number of coliform organisms remained approx. the same in one steer and increased in the other. There was a direct correlation between the increase in the coliform population

in the rumen when 0·5 g. of aureomycin was fed and the increased removal of dry matter, crude fibre, crude protein and nitrogen-free extract from the rumen.

Ladrat, J. (1953). Facteurs de croissance et antibiotiques dans l'alimentation du porc. [**Growth factors and antibiotics in pig feeding.**]—*Rev. méd. vét.* **104,** 216-221. **168**

A general discussion of the nature, method of action and indications for use of vitamin B_{12}, antibiotic supplements and condensed fish solubles. Under French conditions of husbandry it is doubtful whether they could justify their cost except in weakly pigs.—J. T. Done.

Becker, D. E., Terrill, S. W., Lassiter, J. W., Nelson, T. S. & Gard, D. L. (1953). **The influence of antibiotic combinations on the growth response of the pig.**—*Antibiot. & Chemother.* **3,** 778-782. [Spanish summary pp. 845-846.] **169**

Four antibiotics, alone or in combination, were fed as additions to the diet of a total of 138 piglets of weaning age, each for a period of 9 weeks. Oxytetracycline and procaine penicillin yielded equal daily increments in weight. Bacitracin alone was ineffective. The greatest daily increase in weight was produced by a mixture of oxytetracycline, procaine penicillin and bacitracin each at a rate of 5 mg. per lb. of food.—R.M.

Slinger, S. J., Morphet, A. M., Hunt, E. C. & Pepper, W. F. (1953). **Effect of penicillin on the reproductive performance of turkeys.**—*Poult. Sci.* **32,** 660-669. [Authors' summary modified.] **170**

The addition of penicillin to a practical diet for breeding turkeys resulted in a decrease in hatchability, egg production, egg weight and feed consumption. The reduction in hatchability did not prove to be significant at the 5% level of probability but other evidence tends to substantiate the conclusion that the antibiotic had a deleterious effect on hatchability. The decreases in egg production and egg weight were not significant at the 5% level of probability, but when the results for egg production and egg weight are considered together the conclusion seems warranted that penicillin exerted a detrimental influence on egg production. The reduction in feed consumption brought about by the antibiotic amounted to about 5·4% and was found to be significant at the 5% level of probability. The feeding of penicillin to breeding turkeys appeared to influence their performance for a considerable period of time after the treatment was discontinued.

Monson, W. J., Dietrich, L. S. & Elvehjem, C. A. (1952). **The effect of different carbohydrates and antibiotics on the growth of chicks and the storage of vitamins.**—*J. Nutrit.* **46,** 411-423. **171**

The order of nutritional efficiency of carbohydrates fed to chicks receiving adequate amounts of all the known vitamins was found to be: dextrin, cerelose, sucrose, lactose. This could not be correlated with any effect of the carbohydrates on the concentrations of vitamins in the liver and caecum. The concentrations of folic acid and citrovorum factor were relatively high when lactose was fed.—N. Dean.

Roberts, L. P. (1953). ***Bact. coli* as a food supplement.** — *Nature, Lond.* **172,** 351-352. **172**

R. stated that equivalent results were obtained when 5% of *Bact. coli* protein (heat-killed whole organisms) replaced 5% of fish meal protein as a dietary supplement for young rats. In chicks and very young rats the *Bact. coli* protein and fish solubles appeared to have a complementary action, and R. suggested that a satisfactory and economic chick-rearing meal could be compounded from cereals, *Bact. coli* protein, fish solubles, cod-liver oil and grass meal.—E. A. Gibson.

Link, R. P. (1953). **Renal glucose threshold in the pig.**—*Amer. J. vet. Res.* **14,** 172-174. [Abst. from author's summary.] **173**

In the growing pigs studied the renal glucose threshold ranged from 142·4 to 169·0 mg./100 ml. blood. The age of the pig may have some influence on the renal threshold; there appeared to be little variation in the threshold in pigs weighing 35 kg. and over. No data were obtained for mature animals.

Kramár, J. & Levine, V. E. (1953). **Influence of fats and fatty acids on the capillaries.**—*J. Nutr.* **50,** 149-160. [Authors' summary modified.] **174**

When rats were fed a synthetic diet practically devoid of fat and fatty acids, or a synthetic diet containing 5% methyl stearate, the capillary resistance began to decline about the 50th day of the experiment and dropped to pathologically low levels. This drop occurred simultaneously with the flattening of the weight curve, but before characteristic manifestations of fat deficiency had developed. The low capillary resistance of fat-deficient rats was promptly restored by minute amounts of linseed oil or cottonseed oil or pure linoleic acid.

Decrease in the capillary resistance was associated with an increase in the capillary permeability. In testing for capillary resistance in the human being, the influence of dietary fat must be taken into consideration.

BELL, J. M. & WILLIAMS, K. (1953). **Growth depressing factors in rapeseed oilmeal.**—*Canad. J. agric. Sci.* **33**, 201-209. **175**

Growth rates in mice were depressed by rations in which rape-seed oil meal was the major source of supplemental protein. Iodinated casein failed to counteract the growth depressor(s); it may, however, have prevented thyroid hyperplasia. Growth rates were not appreciably improved when flavouring agents were added to rations containing rape-seed oil meal.

Twenty-four references were listed.

—THOMAS MOORE.

SCHÖBERL, A. (1953). Ein halbes Jahrhundert Cystinforschung. **[Cystine: a review of 50 years' research.]**—*Dtsch. tierärztl. Wschr.* **60**, 299-303. **176**

S. concisely reviewed the progress made in clarifying the role and chemical fate of cystine and some related amino-acids in cell metabolism.

—G. P. MARSHALL.

PÁLSSON, P. A. & GRÍMSSON, H. (1953). **Demyelination in lambs from ewes which feed on seaweeds.**—*Proc. Soc. exp. Biol., N.Y.* **83**, 518-520. [Authors' summary modified.] **177**

A brief description of a nervous disorder in lambs born of ewes which had fed on seaweeds during pregnancy. Pathologically the disease is characterized by a demyelination confined to the cerebrum. The copper intake in affected areas does not seem to be low, but the ewes in these areas had low values for blood copper, *i.e.*, less than 0·2 mg. Cu per litre. The copper content of livers from affected lambs was very low.

A field experiment showed that the disorder can be largely prevented by giving a supplement of copper to the pregnant ewes.

NISSIM, J. A. (1953). **Effect of continued iron administration on growth.** [Correspondence.] —*Nature, Lond.* **171**, 1157. **178**

Saccharated iron oxide did not depress growth in mice or g. pigs. Ferric chloride (30 mg. iron/kg. subcutaneously, daily) did not depress growth, but ' ferric hydroxide ferrous ascorbate ' (11·25 mg. iron/kg. subcutaneously, daily) caused depression of growth followed by death in 4 g. pigs. A direct effect on the pituitary gland is suggested.—A. SEAMAN.

DERIVAUX, J. (1953). Het magnesium en het kalium in de dierlijke productie. **[Magnesium and potassium in animal husbandry.]**—*Vlaam. Diergeneesk. Tijdschr.* **22**, 176-188. **179**

D. discussed literature on the influence of magnesium and potassium on grass tetany. The pathogenesis is influenced, not only by minerals, but also by disturbances of protein metabolism. No references were given.

—C. A. VAN DORSSEN.

OYAERT, W. (1953). Grastetanie en voeding. **[Nutritional aspects of grass tetany.]**—*Vlaam. Diergeneesk. Tijdschr.* **22**, 139-151. [In Dutch.] **180**

The author discussed literature on mineral metabolism in grass tetany. He concluded that increase of potassium is not the direct cause of grass tetany, but that an unknown factor influences the levels of both calcium and magnesium in the serum.—C. A. VAN DORSSEN.

BRU, A., BRU, Y., CAJOLLE, F., MOSCARELLA, C. & ROUX, G. (1953). Répartition du molybdène injecté au chien. **[Distribution of molybdenum injected into dogs.]**—*C. R. Acad. Sci. Paris.* **237**, 279-280. **181**

Radio-active molybdenum, in the form of sodium or ammonium molybdate, was administered i/v to 8 dogs. High concentrations of Mo were found in the liver and kidneys and in the endocrine glands. There was little or no Mo in brain, yellow bone marrow and fat tissue.

—R.M.

CLARK, R. (1953). **A study of the water-soluble phosphate concentration of the ruminal contents in normal and phosphorus deficient animals.**—*Onderstepoort J. vet. Res.* **26**, 137-140. [Author's summary copied *verbatim*.] **182**

It has been established that in ruminants there is a circulation of water-soluble phosphorus from the blood, through the saliva into the rumen and back *via* the small intestine. A high water-soluble phosphorus concentration of the ruminal ingesta is thus maintained irrespective of the diet or the phosphorus level of the blood. There is, therefore, no indication that the supplementation of a phosphorus deficient diet with water-soluble phosphate will have any effect on ruminal function.

Talmage, R. V., Kraintz, F. W., Frost, R. C. & Kraintz, L. (1953). **Evidence for a dual action of parathyroid extract in maintaining serum calcium and phosphate levels.** —*Endocrinology*. **52**, 318-323. [Authors' summary modified.] 183

Nephrectomy nullified the effects of injection of parathyroid extract on serum phosphate levels in rats. The serum calcium levels of rats which were both nephrectomized and parathyroidectomized was maintained following the injection of parathyroid extract and a sufficiently high dose of extract led to an increase of serum calcium. The authors concluded that parathyroid extract has a direct and independent effect on both calcium and phosphate metabolism.

Snapper, I. (1953). **Parathyroid hormone and mineral metabolism.**—*Bull. N.Y. Acad. Med.* **29**, 612-624. [Author's summary modified.] 184

The biochemical syndrome as seen in hyperparathyroidism in dogs can be explained by excess production of parathyroid hormone. This stimulates proliferation of the osteoclasts of cancellous bone and thereby increases the erosion of bone trabeculae. The ensuing liberation of large amounts of calcium phosphate causes hypercalcaemia and hypercalciuria. Although large quantities of phosphates are liberated from the skeleton, hypophosphataemia instead of hyperphosphataemia results, because at the same time parathyroid hormone so strongly stimulates excretion of phosphate by the kidney as to cause a decrease in serum phosphates.

Whether this hyperphosphaturia is simply due to increased glomerular filtration or to decreased phosphate reabsorption by the renal tubules or to a combination of these two conditions, is still a contested point in renal physiology. In addition no agreement has been reached whether a decreased phosphate reabsorption would be due to a direct influence of parathyroid hormone on the tubules or whether hypercalcaemia, irrespective of its cause, can decrease reabsorption of phosphates by the tubules.

S. emphasized the differences in the renal function in man and in the dog.

There is reason to believe that the spread of the decalcification of the skeleton in hyperparathyroidism may depend not only upon a negative calcium and phosphorus balance, but also upon other as yet obscure mechanisms.

Murray, M. M. (1953). **The effects of administration of sodium iodate to man and animals.**—*Bull. World Hlth Org.* **9**, 211-216. [French summary. Abst. from author's summary.] 185

A report on study of the effect of sodium iodate on mice and rabbits to determine whether it could be substituted for potassium iodide as an addition to salt for human domestic use. M. concluded that sodium iodate could be so used with safety.

Bowness, J. M., Morton, R. A., Shakir, M. H. & Stubbs, A. L. (1952). **Distribution of copper and zinc in mammalian eyes. Occurrence of metals in melanin fractions from eye tissues.**—*Biochem. J.* **61**, 521-530. 186

Using modified micro-methods it was found that the zinc and copper of the iris of several mammals is in highest concentration in pigmented material which can be extracted with trypsin.—N. Dean.

Bowness, J. M. & Morton, R. A. (1953). **The association of zinc and other metals with melanin and a melanin-protein complex.**—*Biochem. J.* **53**, 620-626. 187

An enzyme in cattle irises catalyses oxidation of tyrosine to melanin: certain metals accelerate the reaction. Zinc combines more readily with a melanin-protein complex than with melanin or protein alone.—John Seamer.

Baker, F. H., MacVicar, R., Pope, L. S. & Whitehair, C. K. (1953). **Placental and mammary transfer of vitamin A and carotene by beef cows.**—*Proc. Soc. exp. Biol., N.Y.* **83**, 571-574. [Authors' summary modified.] 188

Beef cows receiving a carotene allowance equivalent to 60 μg. per lb. body wt. daily were unable to maintain liver stores or plasma vitamin A levels during the last 6 months of gestation. When the carotene allowance was increased to 333 μg. during lactation, liver stores and plasma vitamin A were increased. Vitamin A in the plasma and liver of the calf was closely associated with the carotene intake of the dam during lactation, but was also influenced by the liver stores of the cow at parturition.

Bacigalupo, F. A., Alfredson, B. V., Luecke, R. W. & Thorp, F., Jr. (1953). **Electrocardiographic changes in vitamin E-deficient lambs.**—*Amer. J. vet. Res.* **14**, 214-218. [Abst. from authors' summary.] 189

The influence of vitamin E deficiency on the electrocardiogram was studied in 20 lambs. In the majority of the vitamin E-deficient

lambs, the length of the PR interval increased from normal (0·08 sec.) to 0·10 sec. and in some instances to 0·12 sec. Five of the lambs had abrupt and striking electrocardiographic changes 24 hours before death.

ROMBOUTS, J. E. (1953). **The destruction of B vitamins by certain salt mixtures in purified rations.**—*J. Nutr.* **50,** 255-266. [Author's summary modified.] **190**

A complex mixture of inorganic salts described by Phillips & Hart (1935) and used as a supplement to the diet of laboratory animals, may exert a detrimental effect upon synthetic B vitamins in purified rations. Thiamine is apparently most affected, riboflavin least. This destructive effect was not observed when the rations were prepared with a salt mixture described in the U.S. Pharmacopoeia.

The destructive action of the Phillips & Hart salt mixture was not due to its $ZnCl_2$ or its $CuSO_4$ content. Its higher pH, when in a watery suspension, seemed to be partly responsible for the effect.

GOFF, S., RUSSELL, W. C. & TAYLOR, M. W. (1953). **Hematology of the chick in vitamin deficiencies. I. Riboflavin.**—*Poult. Sci.* **32,** 54-60. **191**

Riboflavin deficiency became evident at the age of 2–3 weeks in chicks on depleted rations. In addition to retarded growth and some curled toe paralysis haematocrit values and heterophile counts increased. This latter factor and the increase in heterophile lymphocyte ratio were produced before clinical signs were apparent.—JOHN SEAMER.

BEARE, J., BEATON, J. R., SMITH, F. & MCHENRY, E. W. (1953). **Conjoint effects of pyridoxine deficiency and anterior pituitary growth hormone administration in the rat.** —*Endocrinology.* **52,** 396-402. [Authors' summary slightly modified.] **192**

Pyridoxine deficiency and anterior pituitary growth hormone administration were conjointly studied in adult female rats and in younger rats fed *ad libitum* and on a restricted food intake. The only observed effects of growth hormone on the blood chemistry of pyridoxine-deficient animals following a test-load of alanine were apparent in adult female rats. Provided that the animals were receiving an adequate amount of food, growth hormone promoted increased body weight and nitrogen retention in the control animals but not in the deficient ones. The hormone aggravated the effects of deficiency as demonstrated by the increased severity of acrodynia, the further elevation in the fasting level of blood urea, the lowered content of total vitamin B_6 in the liver, the decreased weight of the thymus, and the increased weight of the adrenal glands. These effects of growth hormone administration on organ weights and on total vitamin B_6 content were also observed in animals provided with pyridoxine.

SAHASHI, Y. & IWAMOTO, K. (1952). **Biochemical studies on vitamin B_{12}. III. Vitamin B_{12}-deficiency in cattle and biosynthesis of the vitamin *in vivo*.**—*Proc. imp. Acad. Japan.* **28,** 573-577. [In English.] [Abst. in *Nutr. Abstr. Rev.* **23,** 561. (1953), copied *verbatim*. Signed: A. M. COPPING.] **193**

An endemic disease in cattle, known in different districts as " kuwazu ", " kuigami " or " kiriysi " was found to be associated with the absence of *Actinomycetes* from the faeces. The strain of *Actinomycetes* found in the faeces from healthy cattle was capable of synthesising vitamin B_{12} and was susceptible to destruction by silicon fluoride. When SiF_6 was given in drinking water, calves developed the typical anaemia and other symptoms of " kuwazu " and were cured subsequently by injection of vitamin B_{12}. Conditions favouring the destruction of micro-organisms able to synthesise vitamin B_{12} were considered to be the cause of the cattle disease.

WAWRZYNIAK, M. (1952). Obserwacje cytochemiczne nad rozmieszczeniem witaminu C w przysadce mózgowej, tarozycy i nadnerczach świni domowej. [**Cytochemical observations on the distribution of vitamin C in the hypophysis, thyroid and adrenals of the pig.**] — *Ann. Univ. M. Curie-Skłodowska.* Sect. DD. **6,** 417-442. [English and Russian summaries.] **194**

W. speculated on the function of vitamin C in the hypophysis, thyroid and adrenal glands of the pig, including the possibility that it may take an active part in the production of the hormones. The distribution of vitamin C depends on the functional activity of the cells. Although the vitamin can appear independently in the cytoplasm or as extracellular granules it is connected in the hypophysis and adrenal glands with the Golgi apparatus and the mitochondria. In the cells of the thyroid gland it is connected with the mitochondria.

—J. R. MITCHELL.

THIN, C. & ROBERTSON, A. (1953). **Biochemical aspects of ruminant ketosis.**—*J. comp. Path.* **63,** 184-194. [Authors' summary slightly modified.] **195**

Methods devised for accurate differentiation of various ketone bodies were applied to a study of ketosis in ruminants. Estimations carried out on blood, rumen liquor, milk and urine from healthy animals revealed only β-hydroxybutyric acid. Similar samples were examined from 89 cattle with ketosis, including mild and severe types and subclinical cases; blood samples from 15 cases of pregnancy toxaemia were also analysed. The authors described and discussed the partition of ketones in these samples.

HOLCOMBE, R. B. (1953). **The excretion of reducing corticoids and neutral steroids in the urine of cows with parturient paresis.**—*Brit. vet. J.* **109,** 359-364. **196**

H. examined urine from 8 normal non-pregnant milch cows, 12 pregnant cows, 12 recently calved cows and 14 cases of milk fever. The neutral steroid fraction was estimated as androsterone and the reducing corticoid fraction was estimated as deoxycortone acetate. There was evidence that the adrenal cortex was highly active in the last month of pregnancy, and that the cortex returned to normal several days after parturition.

Cows with parturient paresis excreted very small amounts of neutral steroids and reducing corticoids. H. regarded this as a symptom of extreme exhaustion of the adrenal cortex, and suggested that parturient paresis be treated with adrenal cortical stimulants.—R.M.

NEUBERGER, A. & SLACK, H. G. B. (1953). **The metabolism of collagen from liver, bone, skin and tendon in the normal rat.**—*Biochem. J.* **53,** 47-52. **197**

The authors assessed collagen metabolism by means of isotopic glycine in rats of varying age. There is slow replacement at all ages. The greatest turnover is in bone.—JOHN SEAMER.

ATERMAN, K. & GREENBERG, S. M. (1953). **Experimental exophthalmos in rats produced by cortisone.**—*Endocrinology.* **52,** 510-517. [Authors' summary modified.] **198**

The occurrence of varying degrees of bilateral exophthalmos was observed in young male Wistar rats treated for 4 weeks with cortisone acetate. In one animal marked asymmetry of the condition occurred. The authors discussed these findings in the light of present knowledge of the aetiology of exophthalmos.

See also absts. **215** (effect of fluorine on calcium metabolism, in pigs); **298** (report, Gt. Britain); 300 (report, Australia).

DISEASES GENERAL

CHRISTENSON, I. (1953). **Measures suggested for the establishment of universal border regulations as a safeguard against the introduction of contagious animal diseases.**—*Proc. XVth Int. vet. Congr. Stockholm,* 1953. **1,** Pt. 1. 313-320. [In English. French and German summaries.] **199**

C. put forward a motion that a committee should be appointed by the United Nations Organization in order to devise a system of regulations to protect nations against the importation of infected livestock and animal products.—A.S.

RAMON, G. (1953). Uniformisation des bulletins sanitaires et de la nomenclature. **[Standardization of forms of report and nomenclature of infectious diseases of livestock.]**—*Bull. Off. int. Epiz.* **40,** May. pp. 474-481. **200**

The Office International des Epizooties drew up, in 1930, a standard formula to serve as a model for all reports submitted to the organization. Many member countries do not conform to the formula, or fail to make any report at all.

R. proposed that a simple report form should be sent to all countries concerned, considering that the clarity of the form may encourage those countries which normally fail to report, and considerably simplify the work of the organization.—A.S.

LEONOV, N. (1953). **Organization and execution of anti-epizootic measures in the U.S.S.R.**—*Proc. XVth Int. vet. Congr. Stockholm,* 1953. **1,** Pt. 1. 304-309. [In English. French and German summaries.] **201**

In accordance with the current 5-year plan it is intended by 1955 to double the number of livestock and quadruple the number of poultry in the Soviet Union.

L. outlined the main features of the campaign against the most important infectious diseases in the U.S.S.R. at the present time, which are F. & M. disease, swine erysipelas, Newcastle disease, strangles, bovine brucellosis, diplococcal pneumonia, calf diarrhoea, haemorrhagic septicaemia, and trypanosome infection in camels.—A.S.

GANNUSHKIN, M. S. (1953). **[Re-planning the teaching of epidemiology in veterinary institutions according to Michurin's theory on biology and Pavlov's theory on physiology.]**—*Veterinariya, Moscow.* **30,** No. 1. pp. 15-21. [In Russian.] **202**

The theories of Michurin and of Pavlov changed the approach to epidemiology in the

U.S.S.R. The influence exerted by ecology on epidemiology had already been noted [*V.B.* **22**, 3153]; the particular application here has now been expounded. The gist of the new biological theory is that the 3 main factors in epidemiology, activity of the causative agent, transmission of and susceptibility to infection, are entirely governed by outside influences. Once these are known, complete control over disease should be possible. It is stated that already Mechnikov had some such ideas in his mind. It is suggested that infectious diseases should be classified according to their economic importance and tendency to cause epidemics.

Some principles of physiology relating to clinical observation will have to follow suit, falling in line with Pavlov's theories. Therapy should concern itself with aiding the defensive mechanism in the animal, particular attention being paid to the central nervous system (c.n.s.) as being the responsible organ regulating all such action. Diarrhoea and cough were quoted among other examples; they, being only symptoms, should not be treated but the c.n.s. helped instead. G. discussed correlations between immunity, tropism and the nerve endings, the latter concerning their action when antigens and antibodies become involved, because the indications are that the mechanism of immunity works through the interaction of all parts of the body, directed by the c.n.s.—F.A.A.

Dobberstein, J. (1953). 60 Jahre Veterinär-Pathologie. [**Veterinary pathology during the last 60 years.**]—*Dtsch. tierärztl. Wschr.* **60**, 11-13. 203

D. discussed the teaching of veterinary pathology in the veterinary colleges in Germany and the textbooks of special veterinary pathology published in that country during the last 60 years, and assessed the progress that has been made in the field of pathological anatomy of infectious diseases including that relating to fowls and fur animals, in neuropathology, in work on neoplasms and in pathological histology.—H. Behrens.

McLaughlin, A. E. G. (1953). **The prevention of the dust diseases.** [Human.]—*Lancet.* **265**, 49-53 & 104-109. 204

The author discussed the causation and history of occupational diseases of the lungs in man and the methods now being used to prevent them. Five main groups of pulmonary diseases can be caused by dust and fumes:—chronic fibroses; acute pneumonitis, oedema and bronchitis; asthma; cancer; and chronic bronchitis and emphysema. In spite of modern preventative measures which include substitution of a less harmful material, suppression and control of dust, and protection of personnel by special respirators and other means, the total annual number of deaths from occupational fibrosis of the lung is still rising.

—A. Ackroyd.

Leader, G. H. (1952). **The clinical aspect of some diseases met with in young Thoroughbred foals.**—*Vet. Rec.* **64**, 241-245. 205

An account, together with their treatment, of such conditions of foals as abdominal pain, retained meconium, entropion, rupture of the urinary bladder, congenitally contracted tendons, bed sores, patent urachus with umbilical abscess, enteritis associated with various bacterial infections, and symptoms of derangement of the c.n.s.—K. G. Towers.

Vitums, A. & Kainer, R. A. (1953). **A partial situs inversus of the large intestine of a horse.**—*Cornell Vet.* **43**, 20-28. 206

The caecum of a 15-year-old mare was found to be mainly on the left side and the large intestine arranged as a reversal of the normal. The first part lay on the left and dorsally (instead of on the right and ventrally) and the other parts continued this phenomenon. The remainder of the viscera were normal. The blood supply was distributed to the same part of the reversed large intestine as to the normal counterpart. It was suggested that dislocation occurred during elongation of the ascending colon.—R. N. Smith.

Garner, R. J. (1953). **Bile pigment metabolism in cattle. Disturbances in bile pigment metabolism in disease.**—*J. comp. Path.* **63**, 247-253. [Abst. from author's summary.] 207

G. stated that the serum of normal cattle contained only a small amount of bilirubin and no biliverdin.

A significant increase in serum bilirubin was observed in haemolytic jaundice. The relatively insignificant changes observed in some liver diseases cannot be accounted for by a difference in behaviour of the serum of cattle, as compared with that of human beings, as shown by the van den Bergh reaction.

G. stated that the functional reserve capacity of the liver of cattle is very large, particularly its capacity to excrete bilirubin.

Cvjetanović, V. (1953). Osvrt na oboljenja planinske stoke, na tzv. "zajuživanje". [**"Southern wind disease" in Yugoslavia.**]—*Veterinaria, Sarajevo.* **2**, 167. [In Croat. English summary.] 208

The so called southern wind disease ("zajuživanje") of sheep occurs in certain

parts of Yugoslavia when sheep are brought from upland pastures to warm lowland valleys, and is characterized by exhaustion and cachexia [*V.B.* **23**, 2356]. C. associated this disease with invasion of lice.—R.M.

CHESNEY, R. W. L. (1953). **Migram: A disease of sheep on the Romney Marsh.**—*Brit. vet. J.* **109**, 257-268. **209**

A disease marked by nervous symptoms, and locally known as "migram" occurs in sheep in parts of the Romney Marsh area. It is believed to be associated with deficiency of moisture in the diet and ingestion of salt water from drainage channels during hot dry weather, but attempts to reproduce the condition experimentally failed. It was concluded that heat and drought are essential predisposing causes; the ingestion of salt *per se* is not sufficient to cause the disease. In natural cases, provision of adequate quantities of fresh water after the animals have been removed from the affected pastures produces a cure.—G. B. S. HEATH.

HALDEMAN, J. C., STEELE, J. H. & VAN DERWERKER, R. J. (1953). **Trichinosis control and vesicular exanthema (in swine).**—*Publ. Hlth Rep., Wash.* **68**, 421-424. **210**

The high incidence of human trichinosis in the U.S.A., and the economic consequences of the recent severe epizootic of vesicular exanthema in swine point to the necessity for preventing the feeding of unsterilized swill to pigs. Ideally, swill feeding of pigs should be discontinued altogether, but as interim measures more rigid control of the transport and feeding of swill and the development of effective methods of heat treatment are advocated.—J. T. DONE.

VISINTINI, A. (1953). Osservazioni sull'impiego della terramicina in alcune affezioni del cane, tra cui il cimurro. [**Terramycin therapy in dogs.**]—*Atti Soc. ital. Sci. vet., Sanremo*, 1952. **6**, pp. 393-398. [French and German summaries.] **211**

A clinical account of 11 cases, 9 of them complications of distemper, treated with terramycin administered by mouth from 2 to 4 times daily. Results were favourable.—R.M.

ROSENKRANTZ, G. (1953). La lussazione del femore nel cane—riduzione cruenta e contenimento con protesi metallica. [**Surgical replacement and fixation of the dislocated hip joint of the dog.**]—*Atti Soc. ital. Sci. vet., Sanremo*, 1952. **6**, pp. 344-349. [English and French summaries.] **212**

For persistent dislocation of the hip joint in the dog, R. described a method of fixing and immobilizing the joint by means of a metal screw passed through the neck of the femur into the ischium, avoiding the joint itself.

—R.M.

SANGER, V. L., CHAMBERLAIN, D. M., COLE, C. R., DOCTON, F. L. & FARRELL, R. L. (1953). **A disease of turkeys characterized by deformity of the tongue.**—*J. Amer. vet. med. Ass.* **122**, 207-210. **213**

An account of a disease, possibly of nutritional origin, three outbreaks of which occurred in turkeys. Deformity of the tongue consisted in dorso-posterior reflexion with ventral displacement of the hyoid bone.

—F. T. W. JORDAN.

GOULD, D. M. (1952). **Generalized decreased bone density.**—*Amer. J. med. Sci.* **223**, 569-580. **214**

G. divided diseases causing decreased bone density in man into those disturbing mineral metabolism and those affecting the development of bone tissue. He discussed very briefly the pathology and differential diagnosis of the diseases in each group, placing emphasis on the interpretation of radiographs of these conditions.—R. N. SMITH.

See also absts. **217** (calcification of the aorta in a dog); **220** (haematuria in cattle); **298** (report, Gt. Britain); **303** (book, liver injury).

POISONS AND POISONING

COMAR, C. L., VISEK, W. J., LOTZ, W. E. & RUST, J. H. (1953). **Effects of fluorine on calcium metabolism and bone growth in pigs.** —*Amer. J. Anat.* **92**, 361-389. **215**

Fluorine levels of 200–1,000 p.p.m. in the diet were reflected in reduced appetite, slower growth of bone and of the body generally, and lowered feed utilization.

Autoradiographs of pig femurs using Ca^{45} as a tracer showed that high fluorine intake was responsible for:—(a) a reduction in endochondral ossification, and (b) a dysfunction which caused a more rapid disappearance from the primary and secondary spongiosa of the labelled Ca originally deposited near the epiphyseal plates.—J. T. DONE.

VUILLAUME, R. (1953). Toxicologie du thallium. [**Toxicology of thallium.**]—*Rec. Méd. vét.* **129**, 473-482. **216**

A brief review of the chemistry and assay of thallium, of its toxicity and toxic signs of thallium poisoning and its treatment.

—A. SEAMAN.

LANDI, A. (1953). Su di un particolare caso di calcificazione della media nell'aorta di un cane. **[Calcification of the aorta in a dog.]**—*Atti Soc. ital. Sci. vet., Sanremo,* 1952. **6,** pp. 202-205. [French and German summaries.] 217

L. described multiple focal necrosis and calcification of the media of the aorta in a dog, two and a half years old, which had died of toxic liver dystrophy.—E.G.

CROSS, R. F. (1953). **Observations on the bovine hemorrhagic disease caused by trichloroethylene-processed soybean oil meal.**—*J. Amer. vet. med. Ass.* **122,** 103-105. 218

Trichlorethylene processed soya bean oil meal was found to be responsible for causing an outbreak of haemorrhagic disease in 10 dairy herds. The symptoms were fever, anorexia, dyspnoea, bleeding from the body openings or from any slight wound, prolonged clotting time and a marked leucopenia. At P.M. examination haemorrhages were found in all organs. The experimental feeding of the meal to calves produced identical symptoms and lesions. Death was thought to be due to a secondary infection, since simple withdrawal of the meal did not reduce the mortality rate, whereas this was markedly reduced when haemorrhagic septicaemia serum and antibiotics were used in addition to withdrawal of the meal.—J. A. NICHOLSON.

EVELETH, D. F. & GOLDSBY, A. I. (1953). **toxicosis of chickens caused by trichloroethylene-extracted soybean meal.**—*J. Amer. vet. med. Ass.* **123,** 38-39. [Authors' summary modified.] 219

Trichlorethylene extracted soya bean meal that is highly toxic to cattle may at times be toxic to chicks as shown by increased losses, poor growth, and decreased resistance to disease.

DOCHEVA-PUPOVA, R. (1953). **[Ranunculaceae as possible causes of haematuria in cattle.]**—*Veterinariya, Moscow.* **30,** No. 5. pp. 39-41. [In Russian.] 220

The author compared the flora of some hilly pasture areas in Bulgaria, where bovine haematuria was chronic, with that of disease-free areas and found that *Ranunculus montanas, R. acris* and *Clematis vitalba* were common in the former while they were rare in the latter areas. These plants were among the earliest available in spring and were largely eaten by livestock. The local inhabitants regarded them as the cause of the disease. The author suggested that it was anemonic acid content of these plants that irritated the mucosa of the bladder. The greedier individuals were more prone to the disease, presumably because they were less selective in choice of food. Dairy cows, draught oxen and occasionally buffaloes and mules became affected, in that order of frequency. Only one case in a goat was recorded.—F.A.A.

HEATH, D. F. & PARK, P. O. (1953). **An irreversible choline-esterase inhibitor in white clover.** [Correspondence.]—*Nature, Lond.* **172,** 206. 221

The authors consider that an inhibitor found in sample extracts of *Trifolium repens* (strain S100) having *in vitro* anticholine-esterase activity values of 3,640; 4,550; 640 and 32, compared with 2,140 and 10,620 in samples treated with radio-active octamethylpyrophosphoramide, may be identical with one of the cyanogenetic compounds and have some relevance to bloat.—E. MARSH JONES.

BATTE, E. G. (1953). **Observations concerning hazard to animals from use of TEPP-lindane** [tetraethyl pyrophosphate with BHC] **bait for fly control.**—*Vet. Med.* **48,** 319-320 & 323. 222

A mixture of 0·06% tetraethylpyrophosphate (TEPP) and 0·15% lindane (B.H.C.) is being used with success in farm buildings to control D.D.T.-resistant flies. The toxicity of this mixture to calves and cats was examined; no increase in the toxicity of the TEPP to these animals, due to its combination with lindane, was observed. Tests on the oral and dermal toxicity to them of TEPP alone indicated that this compound was dangerous at an oral dose of 2 mg./kg., and at a dermal application of 5–10 mg./kg.—D. W. JOLLY.

KITSELMAN, C. H. (1953). **Long term studies on dogs fed aldrin and dieldrin in sublethal dosages, with reference to the histopathological findings and reproduction.**—*J. Amer. vet. med. Ass.* **123,** 28-30. 223

The insecticides aldrin and dieldrin (chlorinated naphthalene derivatives) were given *per os* to 21 dogs in varying amounts. They had no effect on conception or on pregnancy in bitches, but were excreted in the milk, causing high mortality amongst puppies nursed by the bitches. At P.M. examination degenerative changes were present in various organs. The lesions produced by both insecticides were similar.—R.M.

See also absts. **298** (report, Gt. Britain); **300** (report, Australia).

PHARMACOLOGY AND GENERAL THERAPEUTICS

(For treatment of specific infections see under the appropriate disease)

MILES, A. A. & PERRY, W. L. M. (1953). **Biological potency and its relation to therapeutic efficacy.**—*Bull. World Hlth Org.* **9**, 1-14. [French summary.] 224

A discussion on the differences between the biological activity of drugs and their therapeutic effect on the patient, taking as examples adsorbed diphtheria toxin, delay insulin, and corticotrophin.—R.M.

BORTOLAMI, R. (1953). L'azione della penicillina sulle mastzellen nella pelle di ratto. [**Action of penicillin on mast cells in the skin of rats.**]—*Atti Soc. ital. Sci. vet., Sanremo,* 1952. **6**, pp. 318-323. [English and French summaries.] 225

B. found that the average number of mast cells per microscopical field in sections of skin taken from 15 albino rats was 15 before treatment with penicillin and 10 after such treatment.—R.M.

UMBREIT, W. W. (1953). **The action of streptomycin. VI. A new metabolic intermediate.**—*J. Bact.* **66**, 74-81. [Author's summary modified.] 226

The author found that a seven-carbon phosphorylated compound, 2 - phospho - 4 - hydroxy-adipic acid, was a metabolic intermediate as determined by the incorporation of radioactive phosphorus. In *Bact. coli* it was formed on the addition of pyruvate and oxalacetate or fumarate, and its formation was inhibited markedly by streptomycin.

SORSBY, A., UNGAR, J. & CRICK, R. P. (1953). **Aureomycin, chloramphenicol, and terramycin in ophthalmology.**—*Brit. med. J.* Aug. 8th, 301-308. 227

Therapeutic levels of these antibiotics are not obtained in the eye by systemic administration, while only micronized chloramphenicol (a 15% suspension in 1 : 10,000 phemeride with 0·1% adrenaline) is satisfactory by subconjunctival injection. Apart from the control of epidemic kerato-conjunctivitis by terramycin in ointment form and by chloramphenicol, no improvement was observed with these antibiotics in other virus diseases of the eye.

—A. ACKROYD.

SMITH, W. W., SMITH, F., RUTH, H. J., CANTER, H. Y. & GRENAN, M. M. (1953). **Prophylactic antibiotic therapy in X-irradiated animals.**—*Amer. J. Physiol.* **172**, 351-358. 228

A report on a study of the prophylactic effect of antibiotics in preventing or delaying death in mice and rats following irradiation. Streptomycin was found to give the most favourable survival results.—J. A. NICHOLSON.

LIENERT, E. & STICKLER, I. (1953). Pharmakognosie der Rotenonpflanzen. [**Pharmacological analysis of plants containing rotenone.**]—*Wien. tierärztl. Mschr.* **40**, 414-426. [English, French and Italian summaries.] 229

Qualitative and quantitative methods for the determination of rotenone in plants were discussed generally, with special reference to *Rhizoma derridis*. Detailed descriptions of *Derris elliptica* and *D. malaccensis* were given.

—E. MARSH JONES.

BARBER, A. & NOTHACKER, W. G. (1952). **Effects of cortisone on nonperforating wounds of cornea in normal and scorbutic guinea pigs.**—*Arch. Path.* (*Lab. Med.*) **54**, 334-342. 230

The healing of aseptic incisions of the cornea in healthy g. pigs was delayed by and during a course of systemic and local (corneal) administration of cortisone. A similar delay occurred in g. pigs maintained on a scorbutic diet, and this was not influenced by giving cortisone.—J. EDWARDS.

See also absts. **24** (iso-nicotinic acid hydrazide in TB.); **34** (bacitracin in swine erysipelas); **41** (chloramphenicol in bovine salmonellosis); **59** (effect of erythromycin and other antibiotics on *L. icterohaemorrhagiae* in chick embryos); **62** (virulence enhancement of *C. albicans* by antibiotics and cortisone); **63** (streptomycin in aspergillosis); **64** (actinobacillosis); **71** (ethidium bromide in trypanosomiasis); **72** (antibiotics in Chagas' disease); **74** (trichomoniasis); **76** (sexual retardation in chicks following enheptin treatment); **80** (a method of screening drugs to be used in anaplasmosis); **114** (distemper); **136-139** (insecticides); **147** (atebrin against tapeworms); **150-152** (phenothiazine); **153** (anthelmintics); **154** (aerosols against lungworms); **158** (toluene); **160** (anthelmintic); **166-171** (antibiotics as food supplements); **211** (terramycin); **223** (effect of sublethal doses of aldrin and dieldrin on dogs).

PHYSIOLOGY, ANATOMY AND BIOCHEMISTRY

HARRIS, W. (1953). **The evolution of binocular and stereoscopic vision in man and other animals.**—*Brit. med. J.* Aug. 8th, 297-301. 231

In this review, the successive improvements in the accuracy of vision are traced from the most primitive light receptor, through panoramic vision, to the development of binocular vision as an assistance to carnivorous fish, reptiles, amphibia and birds in catching their prey. In some carnivorous mammals, in addition to the frontal placing of the eyes, stereoscopic vision has also been developed to increase the accuracy of the fusion of the image in depth,

whilst in primates and especially in man, it has been further developed to improve the scope and accuracy of focussing for the coordination of the hand and eye.—A. ACKROYD.

LIPMANN, F. (1953). **On chemistry and function of coenzyme A.**—*Bact. Rev.* **17,** 1-16. 232

Coenzyme A, found in the liver, contains adenine, pantothenic acid, sulphur and phosphorus. It plays a reversible part between acetyl donor and acceptor systems, and also for acyl groups. In pantothenic acid deficiency sterol and lipoid synthesis is upset; it is believed, however, that the derangement is dependent also on the absence of coenzyme A.

—JOHN SEAMER.

LANCASTER, R. J., COUP, M. R. & PERCIVAL, J. C. (1953). **Measurement of feed intake by grazing cattle and sheep. III. Marker technique for investigating the faeces output of grazing cows.**—*N.Z. J. Sci. Tech.* Sect. A. **35,** 117-126. [Authors' summary modified.] 233

Faeces from 3 cows grazing pasture were collected over a period of 40 days. Chromic oxide fed to the cows during the period was quantitatively recovered from the faeces. From the concentration of chromic oxide in samples of faeces, the quantity of faeces voided over periods of 5 days by any cow could be calculated with a coefficient of variation of about 10%.

HAFEZ, S. (1953). **Hormonal mechanisms of mammary development and lactation. A review.**—*Acta endocr., Copenhagen.* **13,** 193-201. [In English. Author's summary copied *verbatim.*] 234

Mammary differentiation (prenatal) and development (post-natal) are produced by two ovarian hormones. There are species differences in the oestrogen/progesterone ratio in body fluids as well as in the hormonal mechanisms of mammary development. Oestrogen-progesterone action does not seem to be mediated by the hypophysis. Thyroxine and some 'trophic' hormones are concerned in mammary development. Milk synthesis is controlled by an enzyme system rather than by hormones.

Lactogenesis and galactopoiesis are controlled by prolactin. There is an interaction between prolactin and the ovarian hormones both in pregnancy and in lactation.

Cortical steroids, thyroxine and thyrotrophic hormone may affect lactation. The inhibitory mechanism of lactation during pregnancy is produced by the placental oestrogens.

Milk discharge is controlled by oxytocin which is secreted after neuro-hypophysial stimulation. Experimental mammary development may be induced by treatment with an optimum oestrogen - progesterone ratio. Lactation is induced by ovarian hormones, thyroxin (thyroprotein) or crude extracts of prolactin.

BALMAIN, J. H. & FOLLEY, S. J. (1952). *In vitro* **effects of prolactin and cortisone on the metabolism of rat mammary tissue.**—*Arch. Biochem. Biophys.* **39,** 188-194. 235

On the 20th day of pregnancy, rat mammary gland is sensitive to cortisone, but not to prolactin; from 1–5 days after parturition the reverse is true. These findings support the concept of a pituitary lactogenic complex.

—JOHN SEAMER.

LUKE, D. (1953). **The effect of adrenocorticotrophic hormone and adrenal cortical extract on the differential white cell count in the pig.**—*Brit. Vet. J.* **109,** 434-436. [Author's summary copied *verbatim.*] 236

Adrenocorticotrophic hormone and adrenal cortical extract injected into normal pigs caused a well marked lymphopenia and a neutrophilia. At the same time there was a sharp increase in the total white cell count. These changes were apparent within two hours of injection.

I. VACIRCA, G. (1953). Sulla morfologia dell'onda "T" nell'elettrocardiografia bovina. **[Changes in the T wave of the bovine electrocardiogram corresponding to the volume of the rumen contents.]**—*Atti Soc. ital. Sci. vet., Sanremo,* 1952. **6,** pp. 225-228. [English and French summaries.] 237

II. VACIRCA, G. (1953). Sulla modificazione dell'onda "Q" nel tracciato elettrocardiografico delle bovine in gravidanza. **[Changes in the Q wave of the electrocardiogram in pregnant cows.]**—*Ibid.* pp. 228-231. [English and French summaries.] 238

I. The author studied the E.C.G. of 10 normal, non-pregnant cows after fasting for 12–18 hours and 2 hours after feeding. Changes in the T wave were observed when the rumen was full.

II. The Q wave of the E.C.G. of ten cows 240–280 days pregnant differed from that normally observed.—R.M.

CASONI, R. (1953). Osservazioni istochimiche comparative sulle secrezioni mucose gastriche nei mammiferi domestici. (Nota preliminare). **[Histochemical examination of the secretion of the gastric mucosa in the domestic animals.]**—*Atti Soc. ital. Sci. vet., Sanremo,*

1952. **6**, pp. 188-192. [English and French summaries.] 239

C. studied the mucopolysaccharides of the gastric mucous membrane of horses, cattle, sheep, swine, dogs, cats and rabbits, by determination of the pH and of the presence or absence of chromotropin.—R.M.

McCallion, D. J. & Aitken, H. E. (1953). **A cytological study of the anterior submaxillary glands of the fowl,** *Gallus domesticus*.—*Canad. J. Zool.* **31**, 173-178. 240

The anterior submaxillary gland of the fowl is a compound tubular structure opening under the tongue. The authors described the histology and also the various activities of the gland. There was strong acid phosphatase and some lipase activity.—R. Gwatkin.

Ottaway, J. H. (1953). **The insulin-like action of growth hormone.**—*Brit. med. J.* Aug. 15th, 357-359. [Author's summary modified.] 241

The author described conditions in which pituitary growth hormone consistently produced an " insulin-like " effect on the glucose uptake of diaphragm from normal rats. The effect was shown to be absent when the rats had been made diabetic, and to return when diabetic rats were injected with insulin. It was postulated that the effect is due to the liberation by growth hormone of insulin held in an active state in the blood or tissue.

Towery, B. T. (1953). **The physiology of iodine.**—*Bull. World Hlth Org.* **9**, 175-182. [French summary.] 242

T. reviewed the history of work on the physiology of iodine. He discussed the application of current knowledge on the subject to problems of thyroid function and the treatment of hyperthyroidism, the mechanism of the iodide trap and the role of iodide in the biosynthesis of hormones, the kinetics of hormone release, the nature of the circulating thyroid hormone, and hormonal metabolism.—E.G.

Dobyns, B. M. & Steelman, S. L. (1953). **The thyroid stimulating hormone of the anterior pituitary as distinct from the exophthalmos producing substance.** — *Endocrinology*. **52**, 705-711. [Abst. from authors' summary.] 243

The authors stated that thyroid stimulating hormone and the exophthalmos-producing substance in anterior pituitary extracts are not identical. These two substances are separable by their differential solubility in trichloracetic acid.

Hoffmann, G. (1952). Beitrag zur Anatomie und Topographie sektionstechnisch wichtiger Organe vom Syr. Goldhamster (Mesocricetus auratus). **[Topographical anatomy of the golden hamster.]**—*Mh. VetMed.* **7**, 188-191. 244

The hamster is of use in research on infective diseases; on these grounds H. reviewed the normal anatomy. Of particular moment is the position of the lymph nodes and the size of the accessory sex glands of the male.

—C. W. Ottaway.

Künzel, A. (1953). Das Ackerknecht'sche Organ beim Syrischen Goldhamster (Mesocricetus auratus). **[Ackerknecht's organ in the hamster.]** — *Berl. Münch. tierärztl. Wschr.* **66**, 175-176. 245

As an observation of phylogenetic interest K. noted that this organ, a rudimentary cell mass with duct opening into the mouth near the gum of the lower incisor, is present in the hamster, but is variable in position and structure.—C. W. Ottaway.

See also absts. **303** (book, liver injury); **304** (book, cytochemistry); **305** (book, endocrinology); **306** (colloquia on endocrinology).

PUBLIC HEALTH, VETERINARY SERVICES AND VETERINARY EDUCATION

Bouvier, G. & Weissenrieder, F. X. (1953). Rapport d'expertise sur la capture de lièvres hongrois et leur transport en Suisse en vue du repeuplement ainsi que sur les conditions sanitaires en Hongrie au point de vue de l'exportation de gibier vivant. **[Report on the capture, transport and veterinary inspection of hares in Hungary for export.]**—*Diana*. No. 3. pp. 3-7. 246

The importation into Switzerland of live hares (and other game), from Hungary had been opposed by certain Animal Protection Societies. This report indicates that no cruelty is involved, and that precautions are taken to prevent introduction of disease.

—R. Macgregor.

Lewis, E. F. (1953). **The abattoir laboratory.** —*J. R. sanit. Inst.* **73**, 393-400. Discussion pp. 400-404. [Author's summary copied *verbatim*.] 247

An attempt has been made in this paper to justify the need and desirability of a diagnostic laboratory service implemented as an integral part of modern meat-factory methods. The basic requirements and general scope of activity of such a laboratory service are briefly

reviewed, and suggestions made with regard to the future professional education of meat inspectors to enable laboratory facilities to be utilized with maximum effect.

HIMMEL, L. (1953). 60 Jahre staatliche Tierseuchenbekämpfung. [**Sixty years' state control of animal diseases in Germany**]—*Dtsch. tierärztl. Wschr.* **60,** 46-50. 248

A note extolling the efficiency of the veterinary services in Germany during the last 60 years in the handling of diseases.—H. BEHRENS.

EVANS, J. W. (1953). **Discussion on new developments in food infestation control. (c) Rodent infestation control.**—*J. R. sanit. Inst.* **73,** 418-425. Discussion pp. 425-427. [Author's summary copied *verbatim*.] 249

An account is given of some of the problems associated with the use of the anti-coagulant rodenticide Warfarin. These include the choice of a suitable bait base and the necessity to avoid the development of mould in bait placed in damp environments. A search is being made for palatable mould-inhibitors. The importance of undertaking thorough surveys prior to Warfarin treatment is stressed and mention is made of the drawbacks that may accompany the use of permanent baiting points.

Tracking dusts as a method of rodent control are discussed and mention is made of the results of preliminary field trials with such dusts.

Following reports received from Australia that rodents are repelled from buildings fitted with ultra-violet lamps, the possible part such lamps play in rodent control is reviewed. It is mentioned that, at present, it is uncertain whether the apparent repellent effect of these lamps is due directly to their radiations or to the production of the ozone which accompanies their use.

An outline is given of the present position in regard to the control of the house mouse in stacked bagged grain, and it is stated that successful control is at present being achieved by means of fumigation with methyl bromide. Behaviour studies with mice are in progress, and though still in the early stages are already providing information which may have a bearing on control developments.

In conclusion the problem of rodent control in sewers is discussed. It is suggested that improved control may follow if it is found practicable to develop a method which permits quarterly instead of half-yearly treatments and direct poisoning instead of poisoning preceded by prebaiting.

MCMEEKAN, C. P. (1953). **Ruakura Animal Research Station.**—*N. Z. J. Agric.* **86,** 436-437, 439, 441, 443, 445, 447 & 448-451. 250

The station was taken over in 1938 by the Animal Research Division of the N.Z. Department of Agriculture to provide facilities for research into animal production. Much of the programme is devoted to milk production, but problems connected with sheep and pigs are also investigated. It is hoped that most of the work will be fundamental in nature and capable of wide application.—G. B. S. HEATH.

ROBINSON, E. M. (1952). **The veterinary profession in South Africa.**—*J. S. Afr. vet. med. Ass.* **23,** 245-252. 251

Prior to 1924 the members of the veterinary profession were entirely recruited from places outside South Africa, mainly from Britain. Since the inauguration of the Pretoria School, South African graduates have been recruited; there are now 210 of these graduates and they comprise two thirds of the whole. On an average 8 South Africans graduate each year, but this number could be doubled if the present limit of 15 new students per year were increased.

There is now a private practitioner in most places where there is a living to be made. It would be possible to increase the number of veterinarians employed if veterinary clubs, on the lines of those in New Zealand were formed, or by some similar organization.

Government service can employ more veterinarians, and there may be some increase in Municipal work, though the smaller municipalities would have difficulty in paying a whole-time man. Recently firms supplying farming necessities have employed some veterinarians, and this practice may be on the increase. R., while cautious in his prophecies, does not think that the profession is likely to become overcrowded in the near future.—R. MACGREGOR.

See also abst. **20** (bovine type TB. in German children).

LIVESTOCK HYGIENE

WILSON-JONES, G., GROENEWALD, J. W. & QUINLAN, J. B. (1953). **The Onderstepoort small animal colony.**—*Onderstepoort J. vet. Res.* **26,** 149-172. 252

The authors stated that the European type of animal house is unsuitable in tropical and sub-tropical countries. Thus, at Onderstepoort, rats and mice are the only small animals to be

housed. Outdoor concrete cages with wire runs are used for other species.

Details were given of the housing, feeding and breeding of albino rats and mice, g. pigs, rabbits, ferrets and hamsters. The authors stressed the importance of routine hygienic measures in controlling ectoparasitic infestations and other disease conditions.—E. A. Gibson.

REPRODUCTION AND REPRODUCTIVE DISORDERS

Rowson, L. E. (1953). **Artificial insemination in Britain.**—*Proc. XVth Int. vet. Congr. Stockholm,* 1953. **2,** Pt. 1. 680-685. [In English. French and German summaries.] 253

R. stated that intracervical insemination (in cattle) is efficient and expressed the view that the enhanced fertility of semen, treated with antibiotics, from low fertile bulls is due to a limiting of infection. He gave details of a method of preserving semen at −79°C. whereby it was kept, up to 40 weeks, without any reduction in fertilizing ability. Semen from one bull, so preserved, may be used to inseminate up to ten thousand cows a year.—Ian Newsam.

Bhattacharya, P. & Prabhu, S. S. (1952). **Field application of artificial insemination in cattle—I** [in India.]—*Indian J. vet. Sci.* **22,** 163-178. [Abst. from authors' summary.] 254

An analysis and discussion of the results of 2,935 inseminations, using 601 ejaculates from 13 *Bos indicus* and 8 *Bos bubalis* bulls belonging to the Montgomery, Patna, and Calcutta A.I. centres of the Animal Genetics Section of the Indian Veterinary Research Institute.

Aehnelt, E. (1953). Über die Methodik der Sameneinführung beim Rind. [**Technique of artificial insemination of cows.**]—*Proc. XVth Int. vet. Congr. Stockholm,* 1953. **2,** Pt. 1. 675-680. [In German. English and French summaries.] 255

To assist in preventing non-specific uterine infection, during insemination, the pipette should be inserted into the vagina before placing the hand in the rectum. Spermatozoa are damaged by long exposure to the lumen of the pipette, which should be flushed out with sodium citrate solution before use.—Ian Newsam.

Ozerov, A. (1953). **Artificial insemination of livestock in the USSR.**—*Proc. XVth Int. vet. Congr. Stockholm,* 1953. **2,** Pt. 1. 685-692. [In English. French and German summaries.] 256

The author expressed the view that environment plays a vital role in successful reproduction. To produce high quality stock in the U.S.S.R., sires and dams are raised under different optimal conditions in varying climatic zones and are then mated by artificial insemination. Semen is examined according to normal practice and encased in paraffin paper capsules which are inserted into the female genital tract by means of a special instrument. Vaginal insemination is recognized in cows, sheep and goats whilst uterine insemination is necessary in horses and pigs.—Ian Newsam.

Branton, C., Patrick, T. E., Newsom, M. H. & D'Arensbourg, G. (1953). **Pasture versus dry lot feeding for dairy bulls in artificial breeding.**—*J. Dairy Sci.* **36,** 199-204. 257

Eighteen bulls, averaging 6·5 years of age, were used in a "double change over" experiment to test their fertility when fed various combinations of grain, hay and pasture. There was no significant difference in sexual behaviour, semen production, or fertility for the different methods of feeding.—Ian Newsam.

Prabhu, S. S. & Guha, S. (1953). **Effect of muscular exercise on semen production.**—*Indian J. vet. Sci.* **22,** 93-107. [Authors' summary modified.] 258

The authors studied the effect on Kumauni hill bulls of an hour's exercise immediately before the collection of semen: paired ejaculates were collected on alternate days from bulls which were given exercise only on the days when semen was collected. Neither reaction time nor the quality of the semen was affected. In two other experiments over four months the long-term effects of exercise for either one or two hours daily were investigated, only one pair of ejaculates per week being collected. In semen from bulls given no exercise for a month there was an increase in the number of abnormal spermatozoa, and a decrease in motility. The quality of semen from bulls receiving one hour's exercise daily was not significantly different from that from bulls exercised for 2 hours.

Casady, R. B., Myers, R. M. & Legates, J. E. (1953). **The effect of exposure to high ambient temperature on spermatogenesis in the dairy bull.**—*J. Dairy Sci.* **36,** 14-23. 259

Using 4 bulls aged 19 to 38 months and subjecting them to temperatures up to 100°F. for varying periods the authors concluded that the critical temperature for spermatogenesis is

between 80° and 90°F., under conditions of continuous exposure.—Ian Newsam.

Hultnäs, C. A. (1953). **A clinical examination of service ability and semen picture in young bulls of the Swedish Red and White breed.**—*Proc. XVth Int. vet. Congr. Stockholm,* 1953. **2,** Pt. 1. 712-717. [In English. French and German summaries.] **260**

Of approx. 1,600 bulls examined, 50% were approved for use by natural service and 30% for use by natural service and artificial insemination. H. emphasized the importance of observing service behaviour. The survey disclosed certain hereditary defects in the breed, notably homosexuality and a condition of hasty thrust leading to incomplete ejaculation.

—Ian Newsam.

Bane, A. (1953). **Experimental studies on serving behaviour in dairy bulls.**—*Proc. XVth Int. vet. Congr. Stockholm,* 1953. **2,** Pt. 1. 709-712. [In English. French and German summaries.] **261**

Six pairs of identical twin bulls reared on three different nutritional levels until 18 months old, were thereafter fed a normal diet. Subsequent study of their sexual behaviour showed that twin brothers displayed great similarity with regard to service ability, whether normal or abnormal.—Ian Newsam.

Adler, H. C. (1953). **The fertility of *Vibrio fetus* transmitting bulls.**—*Proc. XVth Int. vet. Congr. Stockholm,* 1953. **2,** Pt. 1. 816-820. [In English. French and German summaries.] **262**

The author analysed results of 7,363 first inseminations using semen from 6 bulls of normal fertility (Group A) and from 5 bulls of low fertility (Group B). Cows inseminated from the bulls of Group B had reduced conception rates to second service with semen from bulls of Group A, indicating the transmission of an infection by semen from those of Group B. Three of the bulls of Group B were shown to be carriers of *V. fetus*.—Ian Newsam.

Hendrikse, J., Joling, K. F. & Willems, G. B. R. (1953). **Conception results of artificial insemination in cattle and infection with Brucella abortus Bang.**—*Proc. XVth Int. vet. Congr. Stockholm,* 1953. 2, Pt. 1. 696-700. [In English. French and German summaries.] **263**

Bulked milk from 14,158 cows on 911 farms was tested for presence of brucella antibodies by using the *Br. abortus* " ring " test. As the positive reaction increased in intensity when bulked milk was tested, so did the percentage conception rates drop. In 1,473 animals which had been vaccinated with Strain 19 vaccine and 1,582 non-vaccinated cows, all of which gave a negative reaction to the ring test, there was no significant difference in conception rates.

—Ian Newsam.

Bonadonna, T. (1953). Di un particolare sistema per la rappresentazione diagrammatica della produzione spermatica a scopo scientifico ed applicativo. **[Diagrammatic representation of semen production.]**—*Zootec. e Vet.* **8,** 218-220. [English summary.] **264**

B. described a graphical method for recording the volume, density and motility of each ejaculate from a given bull.

Shukla, D. D. & Bhattacharya, P. (1952). **Seasonal variation in ' reaction-time ' and semen quality of goats.**—*Indian J. vet. Sci.* 22, 179-190. [Authors' summary modified.] **265**

Seasonal variations in ' reaction-time ' and the semen characteristics of 8 goats were studied over a 2 year period. The ' reaction-time ' in goats varied significantly as did also all the characteristics of semen studied, except its pH, which varied only insignificantly. ' Reaction-time ' in summer was significantly less than in the other seasons; it was independent of semen production. Highly significant variations in ' reaction-time,' pH of semen, and total number of spermatozoa were noted from year to year, and between seasons there were similar variations in initial motility, concentration of spermatozoa and the total number of spermatozoa as well as in ' reaction-time ', volume of semen, and the percentage of abnormal spermatozoa. The quality of semen was found to be low in autumn and high in spring. Between months within a given season there were highly significant variations in spermatozoa per ejaculate, and in initial motility.

Dreher, W. H. & Webb, J. H. (1953). **A comparison of homogenized whole milk and egg yolk-phosphate as diluters for bull semen.**—*J. Dairy Sci.* **36,** 673-677. [Abst. from authors' summary.] **266**

The authors compared fertility of semen diluted with yolk-phosphate and with milk, from 16 Guernsey and 22 Holstein bulls in December and in May, the months of relatively high and low fertility, respectively. A total of 6,009 experimental first services made with milk-diluted semen, resulted in a 69·8% 60–90 day non-return, compared to a total of 6,060 experimental first services with yolk-phosphate

diluted semen, which resulted in a 59·2% 60–90 day non-return. Bulls of both breeds that tended to be lowest in non-return rates on yolk-phosphate were the ones that tended to give the greatest added reponse when their semen was diluted with milk.

ALBERTSEN, B. E. (1953). **The bactericidal effect of antibiotics in semen diluents. (Preliminary report.)**—*Proc. XVth Int. vet. Congr. Stockholm,* 1953. **2,** Pt. 1. 731-734. [In English. French and German summaries.] 267

The effect of the addition of antibiotics to semen diluent was tested, *in vitro,* against *Br. abortus, V. fetus* and *C. pyogenes.* None of the drugs tested had marked bactericidal effect at 5°C., but at higher temperatures streptomycin appeared to be the antibiotic of choice for eliminating pathogens in semen.

—IAN NEWSAM.

DUNN, H. O., LARSON, G. L. & WILLETT, E. L. (1953). **The effects of freezing bovine spermatozoa in extenders containing antibacterial agents.**—*J. Dairy Sci.* **36,** 728-732. [Abst. from authors' summary.] 268

The authors studied the effect of sulphanilamide, penicillin and streptomycin on viability of bull spermatozoa stored at −75°C. It was suggested that sulphanilamide should not be included in yolk-citrate diluents before freezing and that the relative effect of antibiotics on fertility of frozen semen should be investigated in the field.

HOLT, A. F. (1953). **The effect of glycerolisation of bull semen on fertility.**—*Vet. Rec.* **65,** 624-625. [Author's summary copied *verbatim.*] 269

A split sample trial was carried out to study the effect of addition of glycerol to diluted bull semen. The trial consisted of two experiments where the glycerol was added at different times after collection. In each case conception rate was significantly improved and an overall increase of 4·3 per cent. was obtained. Certain bulls seemed to show a greater increase than others.

WHITE, I. G. (1953). **The effect of potassium on the washing and dilution of mammalian spermatozoa.**—*Aust. J. exp. Biol. med. Sci.* **31,** 193-200. [Abst. from author's summary.] 270

Loss of motility of ram and bull spermatozoa washed for 3 hours at 37°C. in a sodium phosphate-fructose diluent could be prevented by adding 0·004M-KCl to the diluent. The importance of potassium for the maintenance of full motility of spermatozoa at high, medium and low dilutions was discussed.

PAULSEN, L. & VARNEK, J. (1953). **Rapid staining of spermatozoa.**—*Scand. J. clin. Lab. Invest.* **5,** 295. [Authors' summary modified.] 271

An account of a method for rapid staining of spermatozoa with carbol gentian violet.

CHANG, M. C. (1953). **Storage of unfertilized rabbit ova: Subsequent fertilization and the probability of normal development.** [Correspondence.]—*Nature, Lond.* **172,** 353-354. 272

C. transferred 287 rabbit ova, which had been stored in an unfertilized state at 10° or 0°C. for between 6 and 31 hours, into doe rabbits and then fertilized them *in vivo.* The average normal development was 6·25% of the ova transplanted. He discussed difficulties encountered in correlating these results with previous work, using ova fertilized before storage.

—IAN NEWSAM.

HAYS, R. L. & VANDEMARK, N. L. (1953). **Effect of stimulation of the reproductive organs of the cow on the release of an oxytocin-like substance.**—*Endocrinology.* **52,** 634-637. [Authors' summary modified.] 273

Stimulation of the vulva and cervix by massage caused an increase in intramammary pressure in 87 of 99 trials on 16 cows. In each of 3 trials, blood taken after stimulation caused contraction of excised, perfused cow uteri similar to that caused by oxytocin. Blood taken before massage of the vulva and cervix had no effect. It is postulated that stimulation of the reproductive organs of the cow causes the release of oxytocin.

USUELLI, F., PIANA, G. & CURTO, G. M. (1953). Sui momenti secretori e sulle modalità d'azione dell'ossitocina durante il parto. **[Action of oxytocin on the uterus and mammary gland of the cow during parturition.]** —*Atti Soc. ital. Sci. vet., Sanremo,* 1952. **6,** pp. 92-94. [English and French summaries.] 274

The authors studied secretion of milk from the catheterized teats of a milch cow during massage *per rectum* of the uterus, and suggested a mechanism for this reaction.—R.M.

GRAHAM, E. F. & DRACY, A. E. (1953). **The effect of relaxin and mechanical dilation on the bovine cervix.**—*J. Dairy Sci.* **36,** 772-777. 275

The authors discussed mechanical and hormonal dilatation of the cervix in cows used for the collection of ova. Administration of relaxin

together with an oestrogen brought about relaxation of the cervix, whereas oestrogen alone had no effect. An instrument for mechanical dilatation was described. No traumatic lesions from either relaxin or the instrument were discernible by histological examination of biopsies from cervix and uterus.—E.G.

Moore, W. W. & Nalbandov, A. V. (1953). **Neurogenic effects of uterine distention on the estrous cycle of the ewe.**—*Endocrinology*. **53**, 1-11. [Abst. from authors' summary.] 276

The authors discussed shortening of the oestrous cycle in ewes, following experimental distension of the uterine horns (by the insertion of large plastic beads after suture) during the early luteal phase of the reproductive cycle.

Normal cycles were maintained in ewes following distension of a denervated segment of the uterus, denervation alone, however, did not affect the length of the oestrous cycle. The authors stated that following uterine distension there may be an increase in the secretion of follicle stimulating hormone, luteal hormone and luteotrophin. They discussed possible mechanisms of these changes.

Gonzaga, A. C. & Villaver, O. J. (1952). **Studies on the effect of stilbestrol on the stimulation of lactation in virgin and in dry native goats.**—*Indian vet. J.* **29**, 87-96. 277

Lactation was induced in 6 virgin and 3 dry female goats by the administration of 1–2 mg. of stilboestrol.—S. S. Prabhu.

Ferguson, D. J. & Visscher, M. B. (1953). **The effects of androgen and estrogen in castrated and hypophysectomized C_3H mice.** —*Endocrinology*. **52**, 463-473. [Abst. from authors' summary and conclusions.] 278

The authors studied vaginal smears, body weight, organ weights, histology, and mammary whole mounts in 140 castrated and hypophysectomized C_3H male and female mice, and in 20 intact controls, treated with testosterone propionate, and diethyl-stilboestrol and α-oestradiol, separately and in combination.

Antagonistic effects of simultaneously administered oestrogen and androgen in castrated and hypophysectomized mice were observed.

The authors suggest that the pituitary does not play a determining role in the mechanism of action of the sex hormones on the organs studied, except on the mammary gland.

Huston, T. M. & Nalbandov, A. V. (1953). **Neurohormonal control of the pituitary in the fowl.** — *Endocrinology*. **52**, 149-156. [Authors' summary modified.] 279

The presence of an irritant, such as a loop of thread, in the magnum portion of the oviduct of laying hens, completely suppressed ovulation in the great majority of the treated animals. There was no reduction in the size of the ovary, the oviduct or the comb of these hens for 25 days. Injection of progesterone or of gonadotrophin containing LH (luteinizing hormone) into such hens caused ovulation but only as long as the injections were continued. The authors considered that the presence of an irritant may have prevented the secretion of amounts of LH sufficient to cause ovulation, but did not interfere with the secretion of levels of LH sufficient to assure normal androgen secretion. The presence of the loop did not prevent the secretion of normal amounts of follicle stimulating hormone since the ovary remained of normal size for 25 days after the operation and contained follicles similar in size and number to those of untreated hens.

This neurogenic system may be of physiological importance in the normal hen in that it may serve to synchronize ovulation with the other events of the laying cycle.

Hafez, E. S. E. (1953). **Puberty in female farm animals.**—*Emp. J. exp. Agric.* **21**, 217-225. [Author's summary modified.] 280

There were species, breed, and individual differences in the age and live-weight at puberty in the female. Environmental factors also influenced this phenomenon.

The average age at puberty was 39·4 days (first oestrus) in Rahmani and 358·5 days in Ossimi ewe lambs, 136·7 days (first conception) in Baladi rabbit does, and 143·6 days (first egg laid) in Fawomi pullets. The corresponding av. live-weights were 32·2, 30·9, 1·7, and 1·0 kg. respectively. An association between growth and puberty was found. The wt. at puberty when expressed as a percentage of the birth-wt. was 894 in sheep, 3,621 in rabbits and 3,033 in hens. Weight at puberty when expressed as a percentage of adult wt. was 69, 85, and 75 respectively. Phenomena related to puberty, such as conception at the time of puberty, were found to have a genetic background. H. discussed practical applications of these findings.

Pou, J. W., Henderson, C. R., Asdell, S. A., Sykes, J. F. & Jones, R. C. (1953). **A study of the inheritance of breeding efficiency in the Beltsville dairy herd.**—*J. Dairy Sci.* **36**, 909-915. [Authors' summary modified.] 281

There was little inheritance of breeding efficiency in the herd of dairy cows which the authors studied. When the number of services

required for conception, the number of days from first service to conception, or the regularity of the occurrence of oestrus were used as measures of breeding efficiency, selection for improvement in breeding efficiency would not be very effective. Age of the cow and season of the year appeared to be of relatively minor importance as causes of variation in breeding performance. A large amount of accurate and complete data, based on a herd where adequate controls are maintained purely for the purpose of investigating breeding performance, is needed in order to obtain a more exact picture of the relative importance of environmental factors.

WAGENAAR, G. & GROOTENHUIS, G. (1953). **Sterility and sperm examination in stallions.**—*Proc. XVth Int. vet. Congr. Stockholm*, 1953. **2**, Pt. 1. 726-730. [In English. French and German summaries.] 282

To establish normal conception rates the authors surveyed the breeding record of 35 stallions and 3,000 mares. Seventy-two semen ejaculates were examined and it was concluded that a good stallion must produce not less than ten thousand spermatozoa per ml. of ejaculate and of these spermatozoa 65% must be normal. —IAN NEWSAM.

PESCE, P.-A. (1953). La retinite pigmentosa o retinite atrofica, malattia ereditaria del cane. [**Atrophy of the retina, a hereditary disease in dogs.**]—*Veterinaria, Milano*. **2**, No. 4. pp. 24-25. 283

A brief account, based mainly on the work of Hodgman *et al.* [*V.B.* **19**, 2312].—R.M.

WINTERFIELD, R. W. (1953). **Avian cerebellar hypoplasia and degeneration.**—*J. Amer. vet. med. Ass.* **123**, 126-138. [Abst. from author's summary.] 284

An account of a nervous disorder among pullets in 15 large breeding flocks. The onset of symptoms at a semi-mature age and the accompanying cerebellar dwarfing with neuronal degeneration indicates an atrophic as well as a hypoplastic condition. History, clinical observations, and laboratory findings suggest the presence of a sex-linked, recessive factor as causative of the pathological changes and resulting nervous symptoms. This cannot be verified, however, without accurate pedigree records. Such records were not available for the cases examined.

HALLEY, G. & BAXTER, J. S. (1953). **Leucocyte invasion of the genital tract of an intersexual goat.**—*J. comp. Path.* **63**, 179-183. [Abst. from authors' summary.] 285

Genital organs of a 3-day-old intersexual goat were examined morphologically and histologically. The lateral lips of the urogenital sinus had fused to form a short raphe, but the urine reached the exterior at the proximal end of the phallus. The phallus consisted of erectile and fibrous tissue, but did not possess a urethral canal and was neither a rudimentary penis nor an enlarged clitoris. There were Müllerian ducts forming uterine tubes, horns, body and cervix and a large vagina ending blindly against the vestibule and also testes, epididymes, vasa deferentia, seminal vesicles and ejaculatory ducts opening into the urogenital sinus. The whole Wolffian system was invaded by polymorphonuclear leucocytes with acidophil cytoplasm. No bacterial infection was detected.

WRIGHT, J. G. (1953). **Further observations on caesarian section in the bovine.**—*J. comp. Path.* **63**, 211-228. Appendix pp. 229-235. [Author's summary modified.] 286

W. described 45 cases of bovine caesarian section with a maternal recovery rate of 62%. Among the points discussed were the indications for operation and the breeds of cattle involved; details of anaesthesia and operative technique; factors influencing prognosis; the post-operative course and the influence of the operation on subsequent breeding.

See also abstr. **76** (sexual retardation in chicks following enheptin treatment); **223** (effect of aldrin and dieldrin on reproduction in dogs); **238** (electrocardiogram in pregnant cows); **288** (effect of high temperature on reproduction in the ewe); **288** (report, Gt. Britain); **300** (report, Australia).

ZOOTECHNY

BONSMA, J. C., VAN MARLE, J. & HOFMEYR, J. H. (1953). **Climatological research on animal husbandry and its significance in the development of beef-cattle production in colonial territories.**—*Emp. J. exp. Agric.* **21**, 154-175. [Authors' summary modified.] 287

The fertility, rate of development, and differential resistance to disease and mortality of different types and breeds of cattle in semi-aird, sub-tropical environments were investigated. Accurate data clearly illustrated how lack of adaptability in a breed of livestock to a particular environment resulted in slow growth, low fertility, and high mortality, causing financial failure of ranching enterprises which did not take into account the important relationship between environment and livestock production. The authors gave data on the wt. losses of different types and breeds of cattle during a severe drought. Indigenous cattle and

cross-breds overcame this hazard better than cattle from highly improved exotic beef-breeds. The mortality rate of cross-bred and Hereford cattle has been lowered by selection and breeding for increased adaptability.

Suggestions were made in connexion with the improvement of livestock production in semi-arid, sub-tropical environments and the principles that should govern the selection of cattle adapted to such regions were enumerated.

YEATES, N. T. M. (1953). **The effect of high air temperature on reproduction in the ewe.**—*J. agric. Sci.* **43**, 199-203. 288

Exposure of ewes to high ambient temperature did not affect the incidence of oestrus, but, if the temperature were high throughout gestation, the lamb crop was very adversely affected.—G. B. S. HEATH.

HUTCHINSON, J. C. D. (1953). **Effect of hot climates on egg weight.**—*Poult. Sci.* **32**, 692-696. [Abst. from author's summary.] 289

When fowls were exposed to high temperatures for periods ranging from 107 to 214 min., egg weight was reduced, the reduction being greater than that which occurred when the birds were maintained continuously at 85°F. day and night, or at 90°F. during the day and 80°F. at night.

BARROWMAN, J. R., BOAZ, T. G. & TOWERS, K. G. (1953). **Castration of lambs: comparison of the rubber-ring ligature and crushing techniques.**—*Emp. J. exp. Agric.* **21**, 193-203. [Authors' summary modified.] 290

An investigation carried out on the Leeds University farm compared the rubber-ring ligature and crushing methods of castrating lambs aged from 3–5 weeks, subsequently sold as fat lambs. Thirty-four lambs were castrated by each method. The physical effects of castration were recorded and clinical inspections were made. The performance of the lambs was measured by weighing at weekly intervals and recording the live- and dead-weights when sold. The results from 12 sets of twins were examined statistically. No significant difference was found in the time taken to reach slaughter weight or in the carcass weight.

MEANS, T. M., ANDREWS, F. N. & BEESON, W. M. (1953). **The effects of hormones on the growth and fattening of lambs.**—*J. Anim. Sci.* **12**, 176-181. 291

In lambs implanted with pellets of 24 mg. stilboestrol or with 12 mg. of dienoestrol in a high viscosity base, rate of gain and feeding efficiency improved, but carcass quality was lowered. Implantation of pellets of 12 mg. testosterone propionate was as effective, but gave carcass quality equal to that of normal lambs.—R. A. HUCK.

ANDREWS, F. N. & BEESON, W. M. (1953). **The effects of various methods of estrogn administration on the growth and fattening of wether lambs.**—*J. Anim. Sci.* **12**, 182-187. 292

Subcutaneous inoculation of 12 mg. stilboestrol at different sites in lambs gave equally effective results in improving growth rates; normally fed lambs graded better.

—R. A. HUCK.

I, II & III. HANCOCK, J. (1953). **Studies in monozygotic cattle twins. VII. The relative importance of inheritance and environment in the production of dairy cattle. VIII. Performance of identical twins when uniformly treated after having been subjected to different treatments in the previous lactation. IX. The value of identical twins in short-term trials.**—*N. Z. J. Sci. Tech.* Sect. A. **35**, 67-92, 93-96 & 97-116. [Author's summaries modified.] 293

I. H. described an experiment with monozygotic twins, designed to measure the effects of three levels of nutrition on milk, butterfat and casein production.

II. A uniformity trial involving ten sets of twins was carried out. In the preceding lactation the twins had been subjected to diverging nutritional levels, which caused fairly large differences in butterfat production and body weight. The differences in body weight were largely made up during the dry period.

The previous treatment had no consistent effect on milk and butterfat production even during the first 50 days after calving, but over this period the butterfat percentages of the more poorly treated twins were significantly lower than those of their co-twins. Over a 200-day period no significant difference could be found in any of the three characteristics.

H. concluded that the recuperative power of dairy cows (of the age class involved in the present trial) is such that, given opportunity to regain lost body weight during the dry period, identical twins previously subjected to fairly diverging treatments can be employed in new experiments without undue risk of the introduction of systematic errors.

III. H. described two short-term trials in which identical twins were used as experimental material to measure the effect on lactation of meal-feeding before calving, and to compare turnips and silage as supplementary fodders in the declining stage of lactation.

Meal-feeding before calving at the level of approx. 1 lb. meal a day per 100 lb. live-weight, increased milk and butterfat production over the 3 months following calving by 10 and 11% without having an appreciable effect on body weights and butterfat percentage. When turnips and silage were fed as a pasture supplement on the basis of equal amounts of dry matter at a level of approx. half normal total dry-matter intake, it was shown that the turnip-fed cows produced approx. 9% more milk and butterfat over an 8-week period of feeding. Body weights and butterfat percentage were not affected.

TECHNIQUE AND APPARATUS

Hashim, S. A. & Acra, A. N. (1953). **An improved lead-tetraacetate : Schiff procedure.** —*Stain Tech.* **28,** 1-8. 294

An account of a procedure, involving the oxidation of 1,2 glycols, α-hydroxy-acids, α-amino acids and α-hydroxamines by lead tetra-acetate, used for the staining of such compounds as glycogen, mucins, cerebrosides and chitin in algae, fungi, bacterial capsules, protozoa and mammalian tissues.—A. Seaman.

Middleton, G. & Stuckey, R. E. (1953). **The preparation of biological material for the determination of trace metals. I. A critical review of existing procedures.**—*Analyst.* **78,** 532-542. [Authors' summary slightly modified.] 295

The authors reviewed methods that have been used for the destruction of organic matter of biological origin preparatory to the determination of trace metals, and of the objections to and criticisms that have been made of these methods.

Romagnoli, A. (1953). Sull'impiego dell'elettromanometro e dell'elettropletismografo in medicina veterinaria. [**Electrical methods for the direct and indirect measurement of blood pressure in domestic animals.**]—*Atti Soc. ital. Sci. vet., Sanremo,* 1952. **6,** pp. 334-338. [English and French summaries.] 296

R. discussed electrical methods for the measurement of blood pressure in small animals and dogs, and described an electrical plethysmograph for the indirect measurement of arterial blood pressure in the sheep, goat and dog.

—R.M.

See also absts. **27** (cultivation of tubercle bacilli); **28** (enumeration of viable tubercle bacilli (B.C.G.)); **49** (rapid agglutination test for the quantitative estimation of brucella antigens in milk); **80** (a method of screening drugs used in anaplasmosis); **96** (influenza virus propagation in chick embryos); **271** (staining of spermatozoa).

REPORTS

Great Britain. (1951). **Report of the Medical Research Council for the years 1948-1950.** pp 247. London: H.M. Stat. Off. 6s. 6d. 297

Investigation of the characteristics and behaviour of viruses forms a substantial part of the Council's programme including many studies on the epidemiology of virus diseases and measures to prevent or limit their spread. New variants of the Influenza virus are apt to appear and spread across the world. Each variant needs a vaccine individually matched against it. It has been necessary to study influenza on an international basis. The W.H.O. has set up a World Influenza Centre at the National Institute to study epidemiology to find out how the virus survives in inter-epidemic periods and how variants appear in order to plot the type that will come to a country so that it can be met with the appropriate vaccine. Work on Fowl Plague has provided new ideas as to possible life cycles or modes of multiplication of this group of viruses. It has been found that when a cell has become infected simultaneously with two suitable strains of virus possessing different properties, variant forms may sometimes be recovered with properties different from the parent forms. Outbreaks of Q Fever in England were traced to dairy herds in Kent and Devon. In one case the placenta of an infected cow contained large numbers of rickettsia.

Work on cortisone and on A.C.T.H. was reviewed. Further work is necessary before they can be brought into general use. Work on the methionine compounds was described. Research has shewn that similar drugs can be synthesized. In experiments in the cat and the monkey decamethonium was found to have only a slight effect on respiratory muscles while other muscles were relaxed. Hexamethonium can paralyse the vegetative nervous system, and in particular exerts a powerful paralysing action on the ganglia of this system, and is relatively free from other actions. There are indications that hexamethonium may be useful to relieve high blood pressure and also peptic ulcer.

The most extensive use of radio-active isotopes at the National Institute had been in studying how biologically important compounds are formed in the body; among these was haemoglobin. The experiments have made it possible not only to define the simple compounds glycine and acetic acid from which the porphy-

rin part of the haemoglobin molecule is made up, but to identify which atoms in the porphyrin represent the individual atoms of the precursor, with the result that a complete chemical mechanism can now be suggested for the formation of porphyrin. The work has been extended to r.b.c. formation. A study of acute PORPHYRIA with isotopes has done much to explain the pathological process of the condition and revealed unexpected facts about bile pigment formation both in health and disease.

Using isotopes, a study of fat metabolism in the foetus revealed that the main source of energy for the growing embryo must be carbohydrate; the main source of the fatty acids of milk has been shewn to be acetic acid and the biological process by which the fatty acids are synthesized in the body has been demonstrated. Most of these biochemical studies require the use of labelled compounds, the synthesis of which is a highly specialized technique. Research with isotopes is also being applied to proteins and amino-acids, peptides, and cell metabolism. Radio-active iodine can be used to destroy the thyroid gland and to treat certain types of cancer and some cases of non-malignant disease of the thyroid. Radio-phosphorus is similarly effective in counteracting certain diseases of the bone marrow.

Up to 1949 nearly a million genetically different combinations of blood group factors were known. An important part of the work of the Blood Products Research Unit is the drying of plasma.

At the end of the period under review the organization consisted of the National Institute for Medical Research, 38 Research Units, 7 Research Groups, the Antibiotic Research Station, the Laboratory Animals Bureau, the Field Research Station in the Gambia, and a number of members of the staff attached to other institutions. Most of the work was done in the U.K., but members of the staff were working in Egypt, in Tropical Africa, in Malaya, in the Canadian Arctic, and at sea.

—J. A. GRIFFITHS.

GREAT BRITAIN. (1953). **Ministry of Agriculture and Fisheries. Report on Animal Health Services for the years 1949, 1950 and 1951, including report for 1949, 1950 and 1951 of proceedings under the Diseases of Animals Acts.** pp. 96. London: H.M. Stat. Off. 3s. 6d. 298

Previous reports in this series were published in 1949, for the years 1938–47 [*V.B.* 22, 2996] and in 1950, for the year 1948 [*V.B.* 22, 285.]

The number of outbreaks of ANTHRAX increased from 244 in 1949 to 407 in 1951. This increase was attributed to renewed or increased importation of contaminated foodstuffs, organic fertilizers and animal products. Spore vaccine was issued for the vaccination of cattle in approved areas. An area eradication plan for TB. in cattle commenced in October 1950. The number of cattle slaughtered under the Tuberculosis Order decreased from 6,000 in 1948 to 4,000 in 1951. Organisms indistinguishable from *Brucella melitensis* were found in bulked milk from 10 farms. Cattle on these farms which were excreting the organism in the milk were slaughtered.

There were 15 outbreaks of F. & M. DISEASE in 1949, 20 in 1950, and 116 in 1951. The epidemiology of the main outbreaks is described. Up to August 1951 the virus encountered in Gt. Britain was Type O. At that date Type C appeared in Cumberland, but since Nov. 1951, Type A was responsible for most outbreaks. The seasonal incidence and location of primary outbreaks was attributed to the migration of birds from Europe. The number of confirmed cases of SWINE FEVER rose from 5 in 1949 to 1,343 in 1951, probably as a result of increased importation of raw pig products. Features of the main outbreaks and the control measures which were applied are described. The amount of crystal violet vaccine issued increased from 50,000 doses in 1949 to 204,000 in 1951. During 1949 and 1950 outbreaks of acute NEWCASTLE DISEASE continued to occur. In the autumn of 1950 a subacute form of the disease appeared and this greatly complicated eradication. Separate outbreaks began in Sept. 1949 in Scotland.

PARASITIC MANGE of equine animals has now been eradicated. The incidence of SHEEP SCAB decreased, although the disease remained a problem in some areas. Scotland was free from the disease. During the period under review benzene hexachloride dips were widely used. The work of the Veterinary Laboratory at Weybridge, 1949–51, is surveyed in the report. The work of the veterinary laboratory at Eskgrove, Lasswade, Scotland, and of the Crosby Parasitological Field Laboratory near Carlisle, is also surveyed.

The activities of the Veterinary Investigation Service included investigations into the following conditions:—COPPER DEFICIENCY; COBALT DEFICIENCY; *Salmonella* infection in cattle; BRACKEN POISONING; TRICHOMONIASIS; *Leptospira* infection in calves and in pigs; MOLYBDENUM POISONING in cattle; BLOAT in cattle; INFERTILITY; VIRUS ABORTION in ewes;

CONGENITAL GOITRE in lambs; *Plagiorchis megalorchis* infestation of turkeys; FOWL TYPHOID.

Artificial insemination of cattle was carried out at the Cattle Breeding Centres at Reading and Ruthin. Both the number of cattle inseminated and the conception rate increased slightly during 1949–51. Experimental work included the dilution of, and addition of antibiotics to semen; estimation of semen quality; handling, transport and storage of semen; fertility in cattle.

The number of animals imported into Gt. Britain during the period under review is tabulated. There are also tables which summarize the incidence of notifiable diseases and the work of the laboratories.—R.M.

ISLE OF MAN. (1953). **The Government Veterinary Officer's Report for the year ended 31st March, 1953.** [KERRUISH, D. W.]—*Manx J. Agric.* **8**, 11, 13, 15 & 17. 299

Under the Tuberculosis Order 41 cattle were slaughtered in 1952-53 as compared with 39 in 1951-52 and 82 in 1950-51. No cases of ANTHRAX, F. & M. DISEASE, SWINE FEVER or FOWL PEST occurred. Isolated cases of FOWL TYPHOID and CONTAGIOUS ABORTION were investigated. There was one case of SWINE ERYSIPELAS.—R.M.

AUSTRALIA. (1951). **Third annual report of the Commonwealth Scientific and Industrial Research Organization for the year ending 30th June, 1951.** pp. 167. Canberra: L. F. Johnston, Govt. Printer. Items of veterinary interest pp. 37-60 & 67-68. 300

A diagnostic test, for TB. in cattle, based on lysis of sheep r.b.c. coated with a fraction extracted from tubercle bacilli, was not more accurate than the tuberculin test, but may be useful in diagnosing JOHNE'S DISEASE.

Studies on vaccination against CASEOUS LYMPHADENITIS in sheep were continued.

In adult cattle intracaudal vaccination with Strain 19 resulted in antibody levels higher than those following subcutaneous vaccination. Higher antibody levels were achieved when calves were vaccinated at 9–10 months than when vaccinated at 7–8 months, the intracaudal vaccination gave average levels almost twice those resulting from subcutaneous vaccination, and vaccination at 9–10 months left higher agglutinin levels at the age of breeding 12 months after vaccination. A new diagnostic test (more accurate than the "ring test" described by overseas workers) on milk from heifers soon after parturition has been developed.

A mortality in young lambs was due to severe MYCOTIC DERMATITIS.

Periodical testing of BOVINE CONTAGIOUS PLEURO-PNEUMONIA vaccine is necessary. Recent tests revealed a particularly virulent strain. Studies were begun on the metabolism and nutrition of the causal organism.

Rickettsia-like organisms were found in cases of late ABORTION in ewes.

There is evidence that SHEATH ROT in wethers is not of infective origin.

Sheep body-louse (*Bosicola ovis*) infestations on sheep carrying several months' growth of wool were reduced considerably by spraying 1·5 to 3 pints per sheep of 0·007 to 0·01% B.H.C. into the fleece under pressure. Insecticidal "fogs" containing B.H.C. (2·0% gamma B.H.C. in diesel-distillate) did not control body lice. Results with *Melophagus ovinus* were promising. BODY STRIKE BY SHEEP BLOWFLY was prevented by spraying along the back with 1 quart of 0·5 to 1·0% D.D.T. or 0·05 to 0·025% γ-B.H.C. Protection lasted up to 8 weeks. For treatment of strikes 0·1% γ-B.H.C. was necessary. Liberal applications of 0·1% γ-B.H.C. or 2% D.D.T. destroyed maggots and prevented restrike of affected sheep, thereby avoiding the need to clip the wool over the struck area. A lamb-marking dressing consisting of boracic-bentonite-dibutyl phthalate was inferior to "Boracit" (boracic-bentonite-citronella).

Studies on acaricides against *Boophilus microplus* demonstrated high efficiency of parathion. Tests with D.D.T.—B.H.C. and D.D.T.—chlordane mixtures are in progress. Dieldrin was less toxic than B.H.C. Toxicity of D.D.T. for ticks was greater at lower temperatures, suggesting that cattle should be dipped late in the day. In dipping vats there may be a loss of D.D.T. by caking on the bottom. Alteration in the construction of vats is being studied. Larval ticks responded most strongly to olfactory stimuli. In the best method for field sampling for larvae the observer wears tight-fitting white duck trousers as he walks through the pasture making periodical stops to count the larvae. Interest has been directed to the role of the night resting places of cattle as sources of infestation. In the Brisbane (Queensland) region very few viable eggs are produced by female ticks falling on the pasture in winter months (April–July). Overwintering is achieved by eggs and larvae from females engorging in late autumn. Larvae are most active in pasture in early morning and at dusk. Ants destroy many engorged females, but not eggs or larvae.

Studies continued on the epidemiology of HELMINTHIASIS in cattle in Queensland (Qd.) and northern New South Wales (N.S.W.). Studies on daily faecal output in relation to growth and in the interpretation of worm egg counts were continued. FASCIOLIASIS has increased greatly since the lakes at the mouth of the Murray River in South Australia have become fresh water following completion of a barrage. Salinity tolerance tests with *Simlimnaea subaquatalis* showed that 5·8 g. NaCl per l. was lethal in 24 hours. At 2·29 g. per l. some snails survived 7 days. *S. brazieri* and *S. subaquatalis* were found to be synonymous. PARAMPHISTOMIASIS in cattle in Qd. is limited to coastal and sub-coastal regions; *Calicophoron calicophorum, Paramphistomum ichikawai, Ceylonocotyle streptocoelium* and a fourth species not yet determined are present. The intermediate host of *Cey. streptocoelium* is *Glyptanisus gilberti*, that of *P. ichikawai* is *Segnitilia alphena*. That of *Cal. calicophorum* has not been found.

The incidence of *Echinococcus granulosus* in cattle in Qd. ranged up to 70%, with an average of 31% in coastal and sub-coastal regions. Only one of several hundred cysts was fertile.

" Micronized " phenothiazine was more effecive against *Trichostrongylus* spp. in sheep than ordinary commercial grades of the drug. On some occasions phenothiazine temporarily retarded live-wt. increase in young sheep. In Tasmania cases of PHOTOSENSITIZATION were seen in young lambs after administration of phenothiazine. Zinc arsenate and carbon bisulphide adsorbed on bentonite were effective against *H. contortus* when injected into the rumen, but the CS_2-bentonite mixture gave erratic results. Hexachlorophene had some anthelmintic activity. A mixture of tetrachlorethylene and carbon tetrachloride was not more effective than CCl_4 alone against *H. contortus*. Iodine was ineffective, even in large doses (2 to 5 g.), when injected into the rumen.

Sheep previously infested with *O. columbianum* resisted doses of larvae fatal to uninfested sheep. " Self-cure " to *H. contortus* seldom occurs in sheep when dosed with larvae during their initial infestation, but commonly occurs subsequently. Outbreaks of HAEMONCHOSIS are not due solely to numbers of larvae ingested, but also to the periodicity of previous infestations. Young sheep on rations giving wt. gains of 21 to 33 lb. in 5 months acquired much lighter infestations with *Trichostrongylus* spp. than similar sheep on a maintenance ration. A low plane of nutrition did not seriously weaken immunity resulting from a previous infestation with *Trichostrongylus* spp.

Resistance to *H. contortus* does not appear to be an acquired immunity and the vigour of the antibody response to administration of larvae does not reflect the sheep's ability to resist infestation. Resistance to *Trichostrongylus* spp. is a strong acquired immunity, but age alone does not confer it; sheep 3½–4 years old, raised worm-free, were highly susceptible and succumbed to TRICHOSTRONGYLOSIS. The level of circulating antibody reflects the degree of immunity in most cases. While serum antibody titre remained high *Trichostrongylus* spp. persisted in the duodenum without laying eggs and without producing clin. symptoms for 3–4 months. When the titre declined, eggs appeared in the faeces, clinical symptoms developed and some sheep succumbed.

In the " self-cure " phenomenon the rise in serum titre coincides with or quickly follows the decline in worm egg count. " Self-cure " appears to be an allergic reaction in sheep sensitized by previous infestation and is accompanied by both a transient rise in titre of circulating antibody, and a transitory increase in blood histamine.

Studies on helminth physiology included uptake of phosphate by nematodes in sheep and nitrogen catabolism of *Ascaridia galli* and *Nematodirus* spp. *in vitro*. *H. contortus, Trichostrongylus* spp. and *O. columbianum* appeared to feed on the tissues of the host rather than on the contents of the gut. Peptides and ammonia formed the bulk of the excreted nitrogen; some urea and uric acid were produced by *Nematodirus* spp. and some urea but no uric acid by *A. galli*.

Metabolic processes in very young lambs are similar to those of non-ruminants and i/v glucose tolerance tests gave a curve typical of non-ruminants. Later changes in metabolic processes are related to supply of fatty acids following development of rumen function.

Death of sheep following ingestion of large quantities of wheat is due to an abnormal ruminal fermentation by lactobacilli which produce excess lactic acid. Aureomycin given with a ration of wheat sufficient to cause death, prevented ill-effects.

Vitamin A requirements of ewes for satisfactory reproduction appear to be 50 μg. carotene per kg. body wt. daily.

No differences were noted in body wt., wool growth or development of the teeth between 3 groups of young sheep during their first 10 months of life when supplied with

drinking water containing 0·3, 10 or 20 p.p.m. of fluorine.

Nutritional disabilities imposed by COBALT DEFICIENCY are much more prevalent among flocks and herds than is generally realized. Abomasal injection of cobalt was ineffective in preventing the progressive syndrome of COBALT DEFICIENCY. There was no evidence that cobalt *per se* has a physiological role in the tissues of the sheep.

A daily intake of 0·05 mg. cobalt was just sufficient to maintain ewes and lambs in good health.

Field trials on copper deficient pastures gave variable results when molybdenum was administered to sheep: (1) doses of 50 mg. molybdenum daily tended to decrease the rate of depletion of copper from the liver, to maintain the concentration of blood copper and, paradoxically, to precipitate symptoms of COPPER DEFICIENCY; (2) similar doses of molybdenum had no influence on blood copper and tended to deplete the animals' store of copper. Chronic ingestion of tungsten did not reduce the copper content of the liver. Sheep on pastures topdressed with copper 10 years previously had somewhat lowered general health and productivity. After one year on copper deficient pastures the wool of Border Leicester and Romney Marsh sheep was affected, but that of the Lincoln and Dorset Horn breeds was not.

An outbreak of "PHALARIS STAGGERS" occurred on pastures dominated by *P. tuberosa* but only in sheep not receiving a cobalt supplement.

In studies on INFERTILITY in ewes on clover dominant pastures, shading of subterranean clover plants reduced oestrogenic activity.

TOXAEMIC JAUNDICE consists of two major diseases, chronic copper poisoning with haemolytic jaundice and poisoning by *Heliotropium europaeum* with jaundice due to liver damage. Dietetic factors likely to influence storage and absorption of copper are being studied. High storage of copper in the liver is a concomitant effect of HELIOTROPE POISONING. One extract of the plant produced hepatic megalocytosis, which is a characteristic of heliotrope poisoning in sheep.

The Wildlife Section devoted considerable attention to the rabbit problem with special reference to MYXOMATOSIS, which showed epizootic spread during the year. Possible vectors, particularly mosquitoes and sandflies were studied.—H. MCL. GORDON.

UNITED NATIONS. (1953). **Food and Agriculture Organization of the U.N. Report of the second inter-American meeting on livestock production, held at Baurú, Brazil, 8-15 December, 1952.** [PHILLIPS, R. W.] (Edited by.)—*F.A.O. Develop. Paper.* Agriculture. No. 33. pp. 138. 301

The meeting covered a wide range of subjects, dealing with the improvement of livestock production by breeding, improved nutrition, disease control, better handling and processing of products and improved Government services to the industry. The majority of delegates were from South American States, but France, the Netherlands, the U.S.A. and the U.K. were represented. Many recommendations were made, noticeably appeals for adoption of International Standards for biological products; better international co-operation in control of disease and for control of breeding either artificially or naturally. A committee was formed to draw up a glossary of Animal Husbandry terms, to be published in three volumes, English-Spanish, English-French, and English-Portuguese. The Food and Agriculture Organization of U.N. are asked to supervise this publication.

—R. MACGREGOR.

BOOK REVIEWS

EPHRUSSI, B. [Professor of Genetics, University of Paris.] (1953). **Nucleo-cytoplasmic relations in micro-organisms: their bearing on cell heredity and differentiation, being the William Withering Memorial Lectures delivered at the Birmingham Medical School, 1952.** pp. vii+127. London: Geoffrey Cumberlege, Oxford University Press. 18s. 302

This book comprises the text of three lectures discussing results of recent studies on yeasts; on the protozoon *Paramecium aurelia;* and on the mould *Podospora anserina,* particularly in regard to the genetics of these micro-organisms, and the connexions with problems of cell heredity and differentiation. The author discusses the theory of the gene with respect to the consideration of embryonic development and indicates that the cytoplasm is endowed with genetic properties of its own and this provides a basis for the interpretation of the phenomena of differentiation and development. There is an Addendum: On the scarcity of evidence of cytoplasmic heredity and on the ambiguity of the concept of autoreproducing units. There is an index, and the text is illustrated with photographs and diagrams.

—E. MARSH JONES.

HOFFBAUER, M. D. [Edited by.] (1953). **Liver injury. Transactions of the eleventh Conference April 30th and May 1st, 1952, New York. [Sponsored by the Josiah Macy, Jr. Foundation.]** pp. 265. New York: Josiah Macy, Jr. Foundation. $4.00. 303

This book is a detailed report of the eleventh Conference in this series. The meetings were divided into five main topics:—infective hepatitis, enzyme activity, morphology, mechanism of biliary excretion, and hepatic histochemistry.

The book is very well produced, and one of its excellent features is the number of histograms, some coloured, which give a better idea of structure than the more usual two-dimensional diagrams. The reviewer found the style of conversation pieces a little tedious, since *verbatim* reporting is apt to be diffuse. This is the only criticism, however. The work reported and reviewed is backed up by adequate references.

—D. S. PAPWORTH.

DANIELLI, J. F. [Professor of Zoology, King's College, London.] (1953). **Cytochemistry: a critical approach.** pp. 139. New York: John Wiley & Sons, Inc.; London: Chapman & Hall, Ltd. 32s. 304

This book, in seven chapters, is a slightly enlarged version of a series of lectures presented by the author at the University of Chicago in the spring of 1949 and comprises:—(1) Introduction; (2) Fixation procedures; (3) Studies on alkaline phosphatase; (4) The critical study of the cytochemistry of aldehydes; (5) The cytochemistry of proteins and nucleic acids; (6) Quantitative studies in cytochemistry; and (7) The future outlook on cytochemistry.

It is mainly a record of the author's own experimental work and that of research workers closely associated with him and is concerned with the development of rigorous methods of study in cytochemistry viewed from the points of view of the chemist, the physicist and the biologist. This is an exceedingly valuable book. There is an index and the text is illustrated by photographic plates, diagrams and organic formulae.—E. MARSH JONES.

ALBEAUX-FERNET, M., BELLOT, L., BERTON, J., BRÉANT, P., DERIBREUX, J., GÉLINET, M., ROBERT, J. & TRUET, J. (1953). L'année endocrinologique. **[Endocrinology.]** pp. 179. Paris: Masson et Cie. Fr. 815. 305

The subject matter of this contribution, one of an annual series beginning in 1949, is divided into five sections:—I The adrenal cortex, covering such items as the factors of secretion of A.C.T.H., hypercorticism in the adult, hydrocortisone in local treatment of rheumatism, cortisone, A.C.T.H. and thyroid function; II Thyroid—cancer of the thyroid gland, hyperparathyroidism; III Neuro-hypophysis—effect of somatotrophin on growth, treatment of retarded growth and secondary hypogonadism with chorionic gonadotrophin; IV Genital glands—testicular biopsy, methylandrostenediol and V Conditions affecting endocrine systems—dosages of steroids in regard to age, treatment of rheumatism. There is a table of contents, in alphabetical order, of the subject matter contained in contributions for 1949, 1950, 1951, and 1952.—E. MARSH JONES.

ANON (1953). **Ciba Foundation colloquia on endocrinology. Vol. VI. Hormonal factors in carbohydrate metabolism.** [Edited by WOLSTENHOLME, G. E. W.] pp. xiv+350. London: J. & A. Churchill. 35s. 306

This sixth volume in this series of colloquia comprises six parts:—I Enzyme systems concerned in carbohydrate metabolism; II Hormonal control of the interconversion of carbohydrate, protein and fat; III The influence of the adrenal cortex on carbohydrate metabolism; IV Hormonal control of the storage of glycogen; V The influence of insulin on carbohydrate metabolism and VI Sex hormones, pregnancy and carbohydrate metabolism. Contributors include C. H. Best; F. Dickens; S. J. Folley; W. S. Bullough; J. W. Conn; C. H. Gray; R. D. Lawrence; C. N. H. Long and T. R. R. Mann.—E. MARSH JONES.

BEVERIDGE, W. I. B. [Professor of Animal Pathology, University of Cambridge.] (1953). **The art of scientific investigation.** pp. xii+176. Melbourne, London & Toronto: William Heinemann Ltd. 2nd Edit. 10s. 6d. 307

The first edition of this book was published in 1950 [*V.B.* **22**, 601] and the fact that a new edition is called for already indicates the interest it has aroused. A number of alterations mostly of the nature of minor revisions have been made in this second edition and the chapter on Reason has been partly rewritten. In this chapter the value of correct and careful use of language as a powerful aid to clear thinking is one of the points which is emphasized and it is rightly stated that discipline and training in writing is probably the best training in reasoning. In research reason is not a tool for making discoveries but for verifying and interpreting them.

The book is of value not only to those embarking on a career in research but to those whose duty it is to direct and plan research.

—M.C.

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ERRATUM

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For " JACOTOT, H. & VALÉE, A." please read " JACOTOT, H. & VALLÉE, A."

List of Abbreviations

A.I.	— artificial insemination
ant.	— anterior
A.P.F.	— animal protein factor
approx.	— approximately
aq.	— aqueous
av.	— average
B.A.L.	— British anti Lewisite (2,3 dimercaptopropanol)
b.p.	— boiling point
c.f.	— complement fixation
clin.	— clinical
coeff.	— coefficient
conc.	— concentration
c.s.f.	— cerebrospinal fluid
diam.	— diameter
dil.	— dilute(d)
E.I.A.	— equine infectious anaemia
equiv.	— equivalent
ft.	— foot (feet) [measurement only]
Hb.	— haemoglobin
H.I.	— haemagglutination inhibition
inj.	— injection(s)
insol.	— insoluble
Inst. (inst)	— Institute
i/m	— intramuscular(ly)
i/p	— intraperitoneal(ly)
i/v	— intravenous(ly)
i/d	— intradermal(ly)
lab.	— laboratory (-ories)
max.	— maximum (-al)
N.D.V.	— Newcastle disease virus
N.D.	— Newcastle disease
r.b.c.	— red blood corpuscles
r.e.s.	— reticuloendothelial system
R.H.	— relative humidity
s/c	— subcutaneous(ly)
soln.	— solution
suppl.	— supplement(s) (-ary)
std.	— standard
temp.	— temperature
therap.	— therapeutic
U.V.	— ultra-violet
vet.	— veterinary
vol.	— volume
w.b.c.	— white blood corpuscles
wt.	— weight
/	— per (*e.g.* wt./vol.; mg./lb. body wt.)

Bulletins on disease subjects written for farmers and "popular" articles of a similar nature are not included in the *Veterinary Bulletin*. Those of a sufficiently important nature are, however, included in *Index Veterinarius*; so also are certain review articles, presidential addresses, congress proceedings, etc., where the title conveys as much information as could be given in an abstract of a few lines. For information of this nature, readers of the *Veterinary Bulletin* are referred to *Index Veterinarius*, where titles of all publications indexed by the bureau are fully cross-referenced.

A list of annotations and reviews, classified according to subject, is now given in *Index Veterinarius*, being inserted at the end of each number. Such papers will not necessarily be dealt with in the *Veterinary Bulletin*.

The Editor will be glad to receive publications relating to Veterinary Science and cognate subjects in order that they may be dealt with in the *Veterinary Bulletin*.

Reports of Departments, Special Reports, reprints, etc., etc., should be sent as soon as they are issued.

Books for Review.

The Editor will be glad to receive books for review in the *Veterinary Bulletin*.

ABBREVIATIONS OF NAMES OF PUBLICATIONS

The abbreviations used in *Index Veterinarius* and *The Veterinary Bulletin* are those of the *World List of Scientific Periodicals published in the years* 1900-1950, 3rd Edit. (1952). London: Butterworths Scientific Publications.